The Manufacturing and Construction Journal of the Textile Industry

COTTON

Volume 92.
Number 10.
$1.00 a Year.

AUGUST, 1928.

Published monthly by
W. R. C. Smith Publishing Co.
Dalton and Atlanta, Ga.

In the loveliest Fabrics for Spring

TUBIZE YARN enables manufacturers of canton crepes, satins, voiles, bengaline, georgettes, etc., to create and produce quality fabrics of distinction. Its versatility as a "workable" yarn makes possible an extensive range of the newest patterns and colorings, alone or in combination with cotton.

For washable fabrics, Tubize has no equal. Stronger by 10 to 20% than any rayon or similar yarn, Tubize provides that wear-resisting quality desired by economical women. Yet its fine texture, sheerness and be[illegible] due to the fineness of the yarn itself, produces the lovely effects [illegible]

Fa[illegible] iiring no mo[illegible] care than in laundering any dainty fabric.

Don't fail to sample this wonder yarn which wears longer because it is stronger.

Tubize

Reg. U. S. Pat. Off.

Brand YARN *Made in U. S. A.*

Made and sold only by

TUBIZE ARTIFICIAL SILK CO. OF AMERICA · Sales Offices: 303 Fifth Ave., N. Y. C. · Hopewell, Va. · Philadelphia, Pa.

Table of Contents, Page 43. Buyers' Index, Page 178. Advertisers' Index, Page 190.

before she *feels* your hosiery she *sees* your package

¶ How much selling value would your p[ackage have] an outdoor sign? If it hasn't much se[lling value on] the sign, it wouldn't have much sale[s value on] window . . . in an advertisement . . . in a cou[nter display]

Let Kaumagraph's Lithographic Departme[nt] put selling value into your p[ackage . . . starting, if] you wish, with [its very design and following] through [to such craftsmanship in lithography] that you [will have a package to be proud of!—]

KAUMA[GRAPH Co., 350-356 W. 31st St., New] York, [Boston, Philadelphia, Chicago, Char-] lotte, Cl[eveland, Chattanooga, Paris, Ont. Paris, France.]

Lithographed by Kaumagraph

COTTON

Published Monthly by

W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.

W. R. C. SMITH, Publisher. T. W. McALLISTER, Editorial Director.

ROBERT W. PHILIP, Editor.

Editorial and Advertising Departments, Grant Bldg., Atlanta, Ga. Subscription price, $1.00 per year; Canada, $1.50 a year; Foreign $2.00 a year. Entered at the Dalton, Ga., postoffice as second-class matter.

Contributions to the columns of Cotton are solicited and paid for after publication. The names of contributors need not necessarily be used, but must accompany all manuscripts.

Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address notify us, not the postmaster. Always give the old address as well as the new one.

Volume 92

Member Associated Business Papers, Inc.
Member Audit Bureau of Circulation.

No. 10

CONTENTS

Among COTTON'S Readers ---- 41

With the Publishers— ---- 45

General and Technical—

The "Multiple System" of Mill Operation ---- 1005

The Measurement of Luster and Sheen ---- 1007

Group Insurance for Mill Employees ---- 1010

Preparation of Yarn for the Knitter ---- 1011

Finishing of Linen Cloth and Toweling ---- 1013

Money and Monetary Systems ---- 1017

Package Dyeing in Circulating Machines ---- 1019

Current Topics—

Outlawing War ---- 1022

The Presidency is Safe; Think of Congress ---- 1022

Another Huge Cotton Acreage ---- 1024

A Scarecrow Problem ---- 1024

What the Southern Mills are Doing ---- 1024

New England Mill Situation ---- 1026

Cotton Comment ---- 1030

Notes About Men You Know—Or Know About ---- 1032

An Old-Timer Says— ---- 1035

(A Group of Replies from Readers to Some of the Questions Propounded by "Old-Timer" in his letter in the June issue.)

How Other Men Manage—

What Makes Cloth Curve and Bow? ---- 1039

"Textile Salesmen I Have Met—" ---- 1039

An Inexpensive Cooling System ---- 1041

How Are Eyes in Harness Figured? ---- 1043

The Preparation of Colored Warps ---- 1043

Running Humidifiers Over the Week-End ---- 1047

Roving Lapping Up On Wooden Middle Roll ---- 1047

A Problem on Nasmith Combers ---- 1047

What Causes Rust and Scale on Ring? ---- 1047

Improving the Breaking Strength ---- 1048

Watch the Little Things ---- 1049

What Causes the Filling to Shell Off? ---- 1051

Preventing Pickers from Sucking Back Motes and Trash ---- 1051

Desires Methods of Counting Warp and Pick ---- 1053

Some Further Experiences with Cork Rolls ---- 1053

Prevenfing Split Laps on Combers ---- 1055

On Taking a New Job ---- 1055

Promotion in the Mill ---- 1057

Remedies for Curled Cotton ---- 1061

Knitting Section—

Training Hosiery Dyehouse Operatives (Part One) ---- 1071

Some Developments in Knitted Fabrics ---- 1077

The Yarn Market ---- 1083

Is the "Suggestion Box" Idea a Good One? ---- 1085

Cleaning Methods for Circular Machines ---- 1085

Operating and Adjusting Scott & Williams Model H H Knitting Machines (Part Four) ---- 1087

Cutting Holes in Transfer on R I Machine ---- 1093

Mating, Mending and Storing Hosiery ---- 1093

Sizing Ladies' Work on the Banner Machine ---- 1093

Boarding Boys' Wool Golf Hose ---- 1093

Answers to Underwear Questions ---- 1095

Hydroscopic Treatment of Silk for Knitting ---- 1096

Causes of Loops in Back Seam ---- 1099

Yarns Too Coarse for 11-Cut Machine ---- 1099

The Knit Goods Market ---- 1101

Among the Knitting Mills ---- 1108

Trade **"BOLEY PROCESS"** Mark

In Materials for Use in the Textile Trade

-:- Specialties -:-

DIRICIN	For wetting out in the dye bath. Excellent penetrating properties and leveler.
BASE BOIL OFF	A degumming agent for Rayon, Cotton, Mercerized and mixed goods. Has a slight bleaching action. Does not affect the fibre.
KIER OIL	Used in open or closed kier. Readily removes the impurities and lessens the time of operation.
XATOLE	A powerful instantaneous penetrating agent, dye assistant and leveler.
SOLUBLE TALLOWS	For softness—lustre—pliability. A Neutral Product (*No Foaming*)
WARP STRENGTHENER AND DRESSING	For strengthening warp. No chafing— Increases production.
MERCER-DIRICIN	Quick penetration. Affinity for caustic, giving level, even mercerization.

FINISHING MATERIALS FOR SILK, COTTON, RAYON, MERCERIZED GOODS, ETC.

We manufacture and convert a complete line of starches and gums used for general sizing.

Experimental and Research Laboratories at the trades disposal free

C. H. Boley Company

Manufacturing Industrial Chemists

Office and Laboratories 3726-28 N. Randolph St.
Works 3726-28 N. Randolph St. and 3727-29-31 N. 6th St.
Philadelphia, Pa.

Over 30 years experience in the Textile & varied Arts

The "Multiple System" of Mill Operation

Extending Operatives Over More Machines Means Increased Efficiency and Reduced Costs; Plan is Simple to Apply and Operate

KIND OF KNOTTER Boyce — STYLE Sheeting — DATE April 12, 1928
LOOMS TESTED 33 — COUNTS 68×72 — TIME OBSERVED 6:15 A.M. to 6 P.M.
WIDTH OF LOOMS 90" — SPEED 104 — DRY WET TESTED BY REL. HUMIDITY
OPERATOR — LOOM HOURS 363 — NO. HRS. TESTED 11

LOOM NO	WEAK THREAD BODY	WEAK THREAD SEL.	LOOSE ENDS COMING UP BODY	LOOSE ENDS COMING UP SEL.	LINT ON YARN	LINT SPUN IN	BREAKOUTS	KNOTS	CAUSED BY KNOTS	GOUTS	KINKS	SLACK THREAD BODY	SLACK THREAD SEL.	CROSSED ENDS	UNCLASSIFIED SEL	FILLING STOPS	MECHANICAL STOPS	SLIP KNOTS	CUT BY SHUTTLE	DRAW BACK	MAT UP	PICK OUT	SOFT YARN	SPOOLER KNOTS	PERCENTAGE	TOTAL STOPS PER LOOM	DATE SLASHED
153	11	11	1																						104.45	5	
154	111	1						111		1							1				1		1		97.75	11	
155	111		1				1	111		1							11								93.09	11	
TOTAL	81	23	9	1			1	31	20	36	1	3		3		1	36		2		22		9	1	94.55	280	

TOTAL LOOM STOPPAGE 280 — TOTAL LOOM STOPPAGE PER HOUR .77

A sample loom stop report used by a Southern Sheeting mill in connection with the multiple system. Note that it shows the cause for each stop on each loom. The complete sheet shows the stops for 33 looms, a total of 280 stops, or .77 stop per loom per hour on this construction and width.

BY WHATEVER name it is called, the development which has attracted the interest of mills in recent months more than any other phase of plant operation has been the tendency toward extending labor over a larger number of machines—permitting a reduction in cost per pound produced and allowing, usually, an increased wage for the operative at the same time.

The multiple system, as it is called mainly in the South, is the center of discussion wherever mill men foregather, and the purpose of this article is to add, if possible, further information upon the subject. The system has been given more attention in the weave room than elsewhere; although it is equally applicable in the spinning department. To mention casually the experience of one prominent southern mill, where weavers on 64x60 print goods, 40-inch looms, were increased from 22 to 66 looms; and on 64x60 pajama checks from 22 to 86 looms; or to cite the instance of another plant where weavers have been put on 44 90-inch sheeting looms, is sufficient to arouse the interest of the forward-thinking mill manager. These things are being done, and are an evidence of a progressive movement which is changing operating conditions in the mill to meet the ever-new needs of the present day.

Discussion with men who have successfully applied the multiple system indicates that there is nothing difficult or radical about it. Those who have applied it think, not in terms of how many machines an operative can tend, but how many machine stops he can care for—so that, in the weave room, for example, if a given number of stops can be extended over a greater number of looms, it logically follows that the weaver can attend that many looms. This, of course, is accomplished by improving the running of the work to such an extent that the stops per machine are reduced to a minimum.

Therein, according to those who have fought the battle, lies the secret of the system. This article will not attempt a detailed discussion of the method of applying the system. It is hoped later to present a complete study of how it is done, based upon a mill's actual experience. Here it is intended only to outline the general features of the system for the benefit of those who are considering it.

In recent issues, COTTON has published considerable material with reference to various plans of extending the work of operatives over a greater number of machines. At the Weaving Division meeting held at Clemson College, S. C., by the Southern Textile Association much discussion of this subject came up, and details of the practice of several prominent southern mills in applying the "multiple system" were brought out. This discussion was reported fully on page 562 of the April, 1928, issue of COTTON.

Then two southern mill men, responding to a question published in the April issue, gave, on page 705 of the May number, the details involved in the use of special hands to do the cleaning in the spinning room; and again in the July issue, on page 949, in answer to a series of inquiries, these men furnished additional information on this practice—a part of the "multiple system." And in a forthcoming issue a mill man in Rhode Island will give details concerning the making of the necessary time and motion studies in determining the size of the job.

We found recently, in an address by J. M. Barnes, of the Barnes Textile Service, Boston, at New Bedford, a most clear and succinct discussion of the subject, and to outline it briefly we can do no better than to quote liberally from his description.

Mr. Barnes explains that first, a division and re-arrangement of the duties of operatives, based upon careful analysis of existing conditions, is necessary. In general, he points out, the duties as performed by an individual operative under the old plan may be split into three divisions, as follows:

1—Duties which require considerable training and a definite amount of natural skill.

2—Duties which require a shorter period of training, and which may be described as semi-skilled.

3—Duties which can be performed by operatives with practically no training in mill work.

Mr. Barnes continues his discussion of these points:

"By taking away from the expert operative those duties which come under headings (2) and (3), it can be readily seen that she can do only the skilled work on more machines at higher wages, and all of the other duties can be performed by others with pay in proportion to the requisite skill.

"This is nothing more or less than putting into effect the methods which are proving successful in other industries. Years ago, lathes, drill presses, planers, etc., in machine shops were operated by journeyman machinists. Today, the skilled mechanics grind the tools and set up the machines for any particular job and the actual operation of a battery of machines is turned over to lower paid men who have not yet acquired the skill and experience of first-class mechanics. Ambitious operators ultimately graduate to the better jobs.

Using Other Operatives for Less Skilled Work.

Applied to the weave room, this principle means the use of separate hands for filling batteries, etc., leaving the time of the weaver for the operations requiring greater skill. In the spinning room, many mills put on additional girls to do the cleaning of the frames, freeing the spinner to devote herself to piecing up and related duties. To quote Mr. Barnes further:

"In theory, the division of labor and extension of jobs is simplicity itself, but in practice it is most difficult. There are numerous limiting factors which have to be studied and compiled for each size of yarn and each style of cloth in every individual mill. Some of the factors which have to be taken into consideration are as follows:

Stock from which the yarn are spun.
Turns of twist per inch necessary.
Lay-out and arrangement of machinery.
Condition and adjustment of equipment.
Means of controlling humidity.
Speed of machines.
Skill and experience of the individual operatives.

"The ordinary weaver, especially on automatic looms, spends a high proportion of his time on unskilled work. We believe that this condition is wrong and in many mills we have been instrumental in correcting it.

"Careful time study reveals two important factors in determining what changes can be made to correct present conditions:

What percentage of the weaver's time is employed doing actual weaving. By weaving, we mean piecing up warp ends and starting looms.

What causes the loom to stop? Our studies reveal the basic causes for loom stoppage, whether it be the warp, filling, or mechanical troubles. Some of these causes can be practically eliminated, resulting in a higher percentage of production and better quality cloth, as well as lower costs.

"Better running work, that is, less loom stoppage, naturally means that the weaver can run more looms. However, take away all battery work and any other labor which is not weaving and the weaver can run still more looms.

Both Mill and Worker Benefit.

"Who benefits from such a change? In the first place, the mill gains because the higher paid hands do the skilled work on a greater number of looms, while the other work is done by younger, less experienced people at lower pay. In the second place, the weavers benefit because the mill can afford to pay better wages to a weaver doing only the weaving on his set of looms. If a weaver is sweeping, filling batteries, cleaning, or oiling, he is not weaving. If a loom stops while the weaver is performing any of these duties, it means that the weaver's pay from that loom stops. If all of this other work is done by somebody else, the weaver can then concentrate on the job of keeping his set of looms running, which, of course, will give the weaver more pay at the end of the week. The less experienced workers who do the battery work, etc., are given an opportunity to become familiar with weaving; these operatives advance to the weaving jobs as fast as they become proficient."

Taking up next the spinning room, Mr. Barnes shows how a man goes about dividing and re-arranging the duties. "The first thing he does is to make a diagram of the room showing the lay-out of the frames and physical condition, the count of yarn on each, the hank roving, the kind of stock, size of roving bobbins, turns of twist, speed of spindle, speed of front roll, roll settings, diameter of rings, traveler in use, size of bobbin, frequency of doff, and many other details, all of which have a direct bearing on the problem which he has to solve. He then starts a man to making time studies which will reveal how many ends have to be pieced up per thousand spindles per hour, how many roving bobbins have to be creeled in per hour, and the time it takes a spinner to perform the various cleaning operations which are necessary to make the work run well and produce the desired quality of yarn."

AS DO all new developments, the "multiple system" of mill operation opens a wide field for argument and discussion. No movement of this character will ever be accepted universally, and there are always many points concerning such a subject which are brought out in open discussion. This is entirely right and wholesome, because no new idea can be adopted without revisions and alterations, and discussion develops these.

In addition to the exceptional amount of inquiry resulting from the publication in COTTON of the information referred to on the preceding page, there are many questions which readers would like to ask the users of these systems. Due to this fact, and because of the pertinence of the question, we take this means of especially inviting, for the "How Other Men Manage" department, any questions or inquiries concerning this subject. The desired information will be secured as completely as possible and published at the first opportunity.—The Editor.

The Measurement of Luster and Sheen

By L. Blin Desbleds

THE eye cannot by itself appraise, in an indisputable manner, the various elements which constitute a color sensation. In this respect, it differs very much from the other sense organs which, in a great measure, have the power of analyzing the impressions they receive. The nose, the palate, the ear can, for instance, dissociate a mixture of smells, of flavors or of notes, but the eye does not possess such analytical power. Thus it is that it experiences a sensation of white without realizing, in the least, that it is receiving a composite impression. Indeed, it can easily be proved that the eye does not, in the slightest degree, act in the manner of a prism and that, consequently, it is not capable of analyzing light, as can be done mechanically.

If, for example, a white screen be lighted by a mercury lamp, the screen will appear white to the eye. The image of a slit, traversed by a ray of light from such a lamp, will, to the eye, also appear white. It suffices, however, to interpose a prism to make the three principal radiations which constitute the mercury light—i.e., yellow, green and indigo—appear. And this shows that the eye contents itself with a somewhat crude appreciation of white.

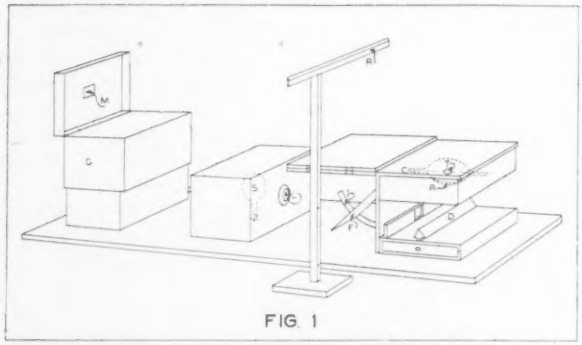


FIG. 1

Fig. 1. Diagrammatic perspective sketch illustrating the use of the photo-electric photo-colorimeter for the measurement of luster or sheen. The samples to be tested are placed on the desk D which may be inclined at either 45 or 22 degrees. Light from the source S after passing through the lens L and regulated by the screen F and the scale I strikes the sample on the desk D. By reflection or by diffusion the light is transmitted from the specimen on the desk onto the photo-electric cell C which has at its center a tungsten ring T and on its inner surface a layer of potassium P. Owing to the emission of electrons between P and T there is a variation in the electric current. This variation, as explained in the text of the article, is given by the displacement of the spot on the ruler R, due to the motion of the mirror M of the galvanometer G.

Naturally, the eye, considered as an estimating instrument, possesses similar shortcomings in the matter of evaluating the luster or the sheen—i.e., the reflecting power—of a support, especially if it has to deal with colored samples, in which case there intervenes the luminosity due to differences of tone or of coloration.

Now, as is well known, the question of sheen is of paramount importance in those branches of the textile industry which are especially concerned with the bringing out of the luster of the fibers used; or with the striving, by happy weaving combinations, to obtain, from the assembled yarn, a texture, the surface of which would possess a desired quality of sheen; or, again, with the giving to a tissue, by finishing processes, a brilliancy which it did not originally possess.

The weaver knows that there is a relation of cause to effect between the sense and the amount of torsion of the yarns, their fineness and their parallelism and the resulting reflecting power, which determines the sheen of the tissue produced. The finisher who, by the use of the calender, desires to give to a cotton tissue a luster resembling that of silk, also knows that the number of marks, per millimeter, of his rollers must be according to the tissue; and that each of these roller marks must coincide with a lease of the satin. And, if this procedure constitutes the method by which he may obtain what is, perhaps, the most flattering sheen, there are many other processes which enable him to produce, with cotton and other textiles, all the effects of luster and of sheen.

Mention may also be made of those beautiful twists used for embroidery and which, in the shop, are sold under all sorts of fancy names but which are very rarely called by their family name: cotton. To this practice is, probably, due the fact that the buyer of today is often ignorant of mercerizing and of mercerized cotton—and this, in spite of the importance of the product and of its manufacture. Apart from its use in embroidery, mercerized yarn is much used in the weaving of cloth for upholstering, dresses, etc. For lingerie and linings mercerized cotton piece-goods are extensively used.

Sheen Is Essential.

The success of mercerized cotton is very legitimate. It rests on the real sterling qualities of the product. Not only is its sheen of good quality and one which stands bleaching and washing very well, but mercerizing makes dyeing easier as well. Moreover, it is one of the very few chemical treatments which, when applied to textiles, improve their qualities instead of deteriorating them. Cotton yarn is much stronger after than before mercerization.

The important part which sheen plays in textile products and which has been summarized in the preceding lines —necessarily draws the attention of textile manufacturers to the question of measuring the results obtained and that of the buyer to the difference in the sheen of the goods offered him.

Up to the advent of the photo-electric photo-colorime-

ter, the only means available for the estimation of sheen was photography which, by light and shade effects, brings out certain zones according as these had great light-reflecting power, or not. But the photographic method of estimating sheen does not permit of its actual measurement by means of definite figures. The invention of the photo-electric photometer, which defines mathematically the degree of sheen, constitutes, therefore, a remarkable progress and

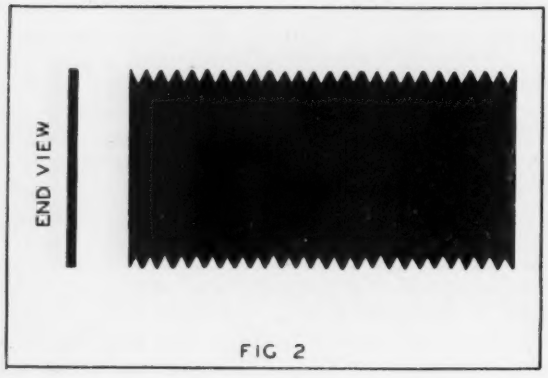


FIG 2

Sketch of dull black steel tissue support. Teeth shown much enlarged.

cannot but prove of considerable value to a very important section of the textile industry.

The photo-electric photometer is the light-measuring portion of the photo-electric photo-colorimeter. Its operation depends on the action of the photo-electric cell, an organ which may be called an "electric eye." The electric eye or photo-electric cell is extremely sensitive to light. It consists essentially of a glass bulb containing argon at a low pressure and having, on its inner surface, a layer of potassium. There is hung, inside the bulb, at a small distance from the potassium, a tungsten ring. The potassium terminal is connected to the negative pole of an electric battery and the tungsten terminal to the positive pole. In the circuit thus formed, a galvanometer is inserted.

Under the influence of a beam of light directed on the cell, the potassium emits electrons which cause the intensity of the current in the circuit to vary instantaneously. As there is an exact proportionality between the light energy acting on the potassium and the intensity of the current in the galvanometer circuit, this latter permits the measurement, in an exact manner, of quantities of light. The photo-electric cell constitutes, therefore, a delicate and accurate photometer. The human eye is entirely eliminated from the measurements, since it suffices to register the displacement of the galvanometer ruler to know the magnitude of light which has acted on the cell.

Measuring Sheen.

The measurement of sheen by means of the photo-electric photometer is always simple and accurate. The exact procedure depends on whether it be desired to find the relative sheen of two surfaces or the difference between their sheen; or, also, on whether the two surfaces are of the same or different colors.

The samples, if they are tissues, are placed on supports provided with the apparatus, with their threads running in the same direction. These sample supports consist in small dull black rectangular pieces of sheet steel having very fine teeth along their longitudinal edges. See Fig. 2. By means of these teeth a sample to be tested can be kept flat and taut against a face of its support; and the loose ends of the tissue are turned round the edges of the support and kept flat against the back of it, by means of a stitch, or otherwise. See Fig. 3. For yarn, similar supports are used. The different threads are carefully wound round the teeth in such a manner that, although they are placed against one another, nowhere are they allowed to ride upon one another See Fig. 4. For wadding or staple, the fibers are arranged as regularly as possible in the bottom of a small case of little depth and kept down by a cover which carries a few very fine dull black steel wires. This cover slides in grooves along the longitudinal sides of the case. To facilitate and expedite measurements, sample and standard are mounted on the same support whenever possible.

The general problem of sheen measurements consists in comparing the sheen of a surface *B* with that of a surface *A*. This latter surface *A* thus becomes the standard; and it is the sheen of *B* relatively to that of *A* which is measured.

If it be desired to measure an absolute sheen, the same standard is always chosen. This standard may be, for example, a mirror conveniently diaphragmed in order that the galvanometer may not be blocked by an excessive current. In practice, it is much simpler to place the blue filter No. 49 which is mounted in the color slide provided with the apparatus on the path of the light rays so as to absorb a portion of them. The screen then plays the part of a diaphragm. See Fig. 1.

In all cases two successive galvanometer readings R_1 and R_2 are taken, the first with the standard and the second with the sample which is being compared to it, both samples being placed on the 45 degree desk of the apparatus.

For the precision of the measurements, and in order to eliminate the possibility of any error which may be caused by variations in the intensity of the source of light (variations in the voltage of the electric current feeding the lamp), it is advisable to take two other readings, R_1' and R_2', of the galvanometer with the samples placed in the path of the beam of light in the reversed order—that is, the support carrying the samples to be compared is moved in the first series of two readings (i.e. R_2' and R_1') from left to right. Also it is important that each of the two sets of readings should be made as quickly as possible.

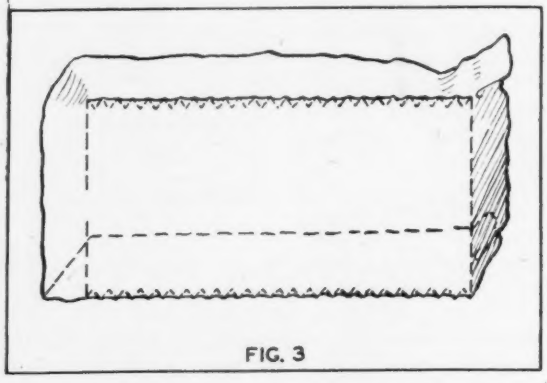


FIG. 3

Illustrating the mounting of a sample of tissue on a support.

Let *A* denote the mean of the galvanometer readings R_1 and R_1' obtained with the standard and *B* the mean of the readings, R_2 and R_2' obtained with the specimen which is

being compared to it. We thus have:

$$A = \frac{R_1 + R_1^1}{2}; \quad B = \frac{R_2 + R_2^1}{2}$$

From the known values of A and B we may calculate the sheen of sample B relatively to that of A. This is of course given by the value of $\frac{B}{A}$.

We may also calculate the relative *difference* of sheen between the standard (mean galvanometer reading $= A$)

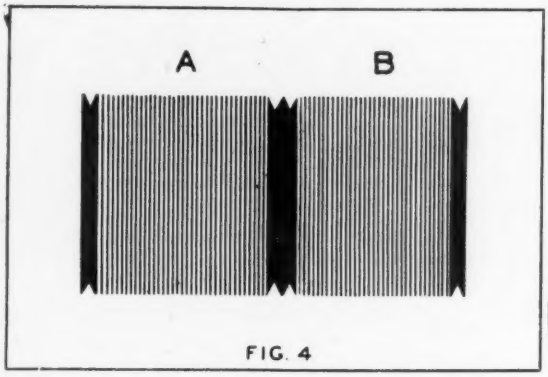


FIG. 4

Showing two sample, A and B, of yarn mounted side by side on one support.

and the sample (mean galvanometer reading $= B$) by applying the formula:

$$\frac{B - A}{\frac{B + A}{2}} = b;$$

and in order to obtain figures which are more easy to tabulate and use, it may be advantageous to multiply the quotient b by a constant such as 50 or 100.

Numerous experiments have shown that $b \times 50$ gives values comprised between 0 and 20 for two samples of cotton, one of which has undergone no brightening operation whatsoever and the other having undergone them all (mercerization, etc.).

When it is desired to compare the sheen of colored samples, it becomes necessary to eliminate differences of luminosity which may be due to differences of coloration. Hence, in such a case, two series of measurements are made. A first series is made, in the manner already described, in reflected light by using the 45 degree desk as previously mentioned; and a second series in diffused light, by using the 22 degree desk, also provided with the apparatus. From the figures obtained in the case of reflected light (desk at 45 degrees) are subtracted those obtained in diffused light (desk at 22 degrees) and differences of luminosity due to tone and coloration are, thereby, eliminated.

In fact, we may consider that a beam of white light, reflected from a colored surface, is made up of two portions:

(a) *white* rays or brilliant rays reflected from the mirror surface at an angle equal to the angle of incidence; and

(b) colored rays diffused in every direction around the point of incidence by the dull coloring substance and the coloring matter itself.

Let us suppose—a supposition which, as we shall see, is justified—that these latter rays are equally and uniformly diffused in every direction; and let

d B denote the difference in the brilliancy of two samples

and d C denote the difference in the color of two samples

By placing the samples on a 45 degree desk relatively to the horizontal beam of light, we measure, by means of the photo-electric cell placed above the point of incidence—hence at 45 degrees relatively to the desk—the sum of the two differences, that is d B + d C.

By varying slightly the angle of the desk, the "rays of brilliancy" get out of the cell and we measure only d C.

The difference between these two measurements, that is (d B + d C) — d C gives d B or the difference of sheen, independently of the color. *And this result constitutes an achievement which even the most exercised eye is incapable of performing.*

The preceding hypothesis demands the assumption that d C is the same in the case of both measurements. Now,

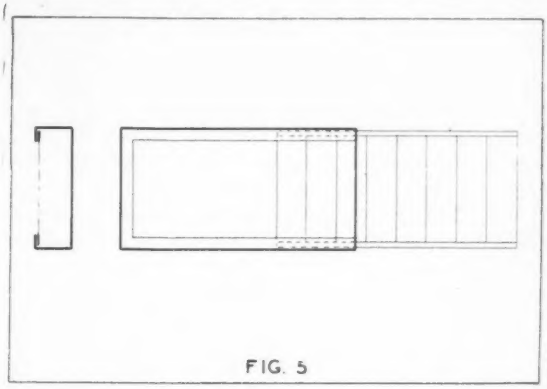


FIG. 5

Showing the small case used for wadding and staple samples.

experiments made with samples where d B $=$ O have proved that it is quite plausible and that, in practice, the parasitic factor d C is eliminated by means of the second measurement.

With the photometer portion of the photo-electric photo-colorimeter, readings are, as already mentioned, made by using two desks at different inclinations:

at 45 degrees to measure d B + d C; and

at 22 degrees to measure d C.

Then, in each case, the quotients b and b^1 are calculated as already indicated. The *algebraic* difference $b - b^1$ (multiplied, or not, by a constant) gives the difference of sheen independently of the color.

Booklet on Oxwelded Piping.

The Linde Air Products Company, 30 East 42nd St., New York City, have published a booklet, "Oxwelded Industrial Piping." It describes and explains economies in construction, repair and maintenance of oxwelded pipe systems and is profusely illustrated.

Lupton Begins Work on Chicago Plant.

David Lupton's Sons Co. Philadelphia, Pa., manufacturers of steel windows and other steel products, will immediately erect a new Chicago plant and warehouse. The first unit will be 500x150 feet, and additional land is provided for expanding the plant to one 1000x300 feet.

Group Life Insurance *for* Mill Employees

An Economical Means of Creating Estates and Providing Protection for Mill Operatives on Mutual Basis

Since an increasing number of cotton mills are displaying an interest in the subject of group insurance for their employees, we have asked Mr. Shields for this brief description of some of its forms and a discussion of current methods of application and operation in the textile plant. Mr. Shields is home office representative of the Aetna Life Insurance Co.

By B. E. Shields

GROUP life insurance is comparatively a new feature when other forms of life insurance are considered. Some fifteen years ago, the first group policy was written, and since that time group insurance has grown by leaps and bounds.

There are two plans on which a group policy may be handled. One is known as the non-contributory plan. This was used almost exclusively until five or six years ago. It required that the mill pay the entire premium and that the insurance be given to the mill employees without charge. Usually small amounts were given, increasing with the employee's term of service. This plan was sold practically entirely with the idea of reducing labor turn-over.

It was discovered, however, that in many cases, group insurance on this basis was a failure. Many mills found that the employees did not appreciate what the mill was doing for them, that their insurance had little effect upon labor turn-over, and that the plan was very expensive to the mill. The result was that many of the mills substituted the more modern plan of contributory group insurance.

Contributory Plan Now in Favor.

The contributory plan contemplates sharing the premium between the mill and the employee. The mill employees may be offered insurance at a cost, to them, of 60 cents per month per $1,000, and the mill itself takes care of the balance of the cost. This rate of 60 cents per month, or $7.20 per year per $1,000, is cheaper than most employees can secure individual insurance, regardless of age. There is no medical examination nor age limit considered in group insurance. Deductions are usually made from the employee's pay, and the insuring company looks to the mill for the entire premium.

In order for the plan to be a success, at least 75 per cent of the total eligible employees should be insured. It can readily be seen that this plan is designed to off-set some of the disadvantages of the non-contributory method. Unless the employees appreciate the fact that the mill is offering them insurance at a real bargain, they do not take the insurance, and therefore the mill's cost on them is nothing. Most of the cost is assumed by the employees themselves, and the mill's share of the cost is reduced.

Usually No Increase in Rate.

The cost of group insurance depends upon the age distribution of the employees insured. The policy itself is issued on a one-year term renewable basis, and the cost is re-calculated once each year on the basis of the attained ages of the employees then insured. While at first glance this may leave the impression that the cost of group insurance increases yearly, this does not work out in actual practice. The natural labor turn-over, deaths, new employees engaged, etc., tend to keep the average age distribution practically constant from year to year. In addition, the companies writing this form of coverage may reduce the cost from time to time, by a system of rate reductions or dividends, depending upon experience.

Most group policies, in addition to paying in the event of death, contain a clause by which the insurance will be payable to the employee himself, should he become totally and permanently disabled before reaching age 60. Most policies also give the employee the right to convert his group insurance to some permanent form of insurance, without medical examination, upon termination of employment, provided such employee applies to the insuring company within 31 days from the date his employment terminates.

By offering a plan of group life insurance to the employees, the mill makes it possible for the worker to obtain a substantial amount of protection for himself and family, through the mill, at a cost within the reach of every employee. Most mill employees carry a number of small policies, the cost of which is proportionately high. They cannot, as a rule, pay premiums quarterly, semi-annually or annually, and thus a higher rate must be charged to take care of the added expense of weekly collections and the book-keeping incident to these policies.

A plan of group insurance on the contributory basis will relieve the mill of any financial responsibility that they may feel on account of the death or total and permanent disability of any of the employees. It will also serve to create or enhance a spirit of appreciation and goodwill built up through cooperation between the mill and its operatives. It will have a tendency to keep sober thinking employees on the job. By relieving employees of a constant source of worry about their dependents, it will help to make employees better satisfied with their jobs, with the result of greater efficiency.

Reduces "Charity".

In the event of the employee's death, group insurance is designed to eliminate passing of the hat among employees, and will also alleviate the probability of the employee's family being thrown on the charities of the community. If every concern had some such plan of insurance for their employees, there would be fewer "Potter's Fields."

Another advantage of group insurance is that it need not be cancelled on employees who are temporarily laid off, on leave of absence, retired on account of old age, or those employees who may be pensioned. It is something permanent for the employee who sticks to his job, and it is temporary protection for the employee who does not expect

(*Continued on page* 1068.)

The Preparation of Yarn for the Knitter

How the Mercerizer Endeavors to Control All of the Factors in His Operations to Produce a Desirable Yarn

By Burton F. Mitchell

THE actual manufacture of cotton yarn is just as important as the mercerizing, or finishing, process. It has been said that mercerizing and dyeing begin in the card room. I agree with that statement to a certain extent, but I would modify it by saying that those two processes begin with the selection of the cotton. The grade, staple, and character of the cotton selected determine to a great extent the quality of the yarn, but of course the subsequent processes in spinning affect the smoothness, elasticity, and uniformity of size and twist, all of which are important factors after the yarn has been turned over to the finisher.

The mercerizers who manufacture their own yarn, or who have a regular source of supply of a constantly uniform product, have a distinct advantage over those who buy their yarn at random. Cooperation between the mercerizing plant and the spinning plant plays a highly important part in the successful production of mercerized yarns.

IN the accompanying discussion of mercerizing, prepared for and presented at the recent Asheville meeting of the Southern Section of the American Society of Textile Colorists and Chemists. Mr. Mitchell stresses particularly the important bearing that a good quality of yarn has upon the production of a first-class job of mercerizing. He outlines the important steps involved in the actual mercerizing process, the pre-treatment and after-treatment of the yarn, etc. It should give the manufacturer a picture of the process through which his yarns are put; and should show the knitter some of the factors involved in producing a satisfactory product for his use.

The Customer's Needs.

The knitter has two major considerations in the selection of mercerized yarns of a quality that will produce economically a type of goods that will satisfy the market of today. He desires a yarn that will run well on his machines with a minimum of waste, and a yarn that will dye uniformly, and show a good luster in the finished goods. As I have stated before, spinning plays an important part in producing a yarn of this type, but since deciding to narrow the subject down to mercerizing, we will take it for granted that the mercerizer is receiving an average yarn, and proceed from here with the actual process of mercerization.

The modern mercerizer desires to produce a finished yarn that is uniform in structure, pliable, of a good luster, with an increased affinity for dyes, and having a high breaking strength. There are many finishers who are producing a product that will come up to these qualifications, but it is interesting to note that they are using many and varied treatments to get the same results.

Mercerization Must Penetrate to Cellulose.

The chemical composition of the cotton fiber is similar to most of the other vegetable fibers, and consists chiefly of cellulose, which is coated with a layer of wax and oily matter, and more or less pigment. The first problem of the mercerizer consists in the method to be used in the treatment of the waxes, oils, and other impurities on the fiber so that the concentrated caustic solution will come in direct contact with the pure cellulose. The direct contact, or penetration, of the fiber is necessary before a product can be produced that will show a uniform luster, or dye evenly.

There are at least two different methods used in treating the waxes and oils. One treatment consists in giving the yarn a thorough wetting out in plain boiling water, or in some instances with the addition of some penetrating agent that will assist in opening up the yarn and softening the waxes and oils. This method does not remove the waxes and oils, but it makes the yarn more absorbent of the caustic. Of course, dirt and other foreign matter is removed by the boiling water. The second treatment consists in the emulsifying of the oils and waxes by the use of a chemical agent, and holding them in suspension until they can be removed. Theoretically, this method gives a pure cellulose fiber for direct contact with the caustic bath. However, an objectionable feature is that a large percent of the mercerizing in this country is done on warp ranges, and as the period of detention in the boiling boxes is so limited it is quite possible that in some instances the oils and waxes will be emulsified without removal from the yarn. If this should be true, instead of assisting the mercerization it would be hindered by the retention of the oils and waxes on the yarn. This question of pre-treatment is a fine one for discussion as there are good arguments pro and con.

Temperature, Caustic Strength, Tension Important.

After preparation and before going into the concentrated caustic (where the actual mercerizing takes place) the yarn must be run through cold water, as the temperature of the caustic bath is one of the three vital factors in producing a soft, lustrous yarn. The temperature of the caustic bath should be kept below 70 degrees F. at all times, or there is a possibility of the finished product being harsh and discolored, two defects which no knitter would ever overlook.

The next factor is the strength of the caustic, which must be kept the same throughout the process as the action of caustic soda on the cellulose fibers varies with the different degrees of strength. This, of course, would bring about a condition which is generally termed uneven mercerizing, and that in turn causes uneven dyeing.

The third element to consider is the amount of tension under which the yarn is kept during the action of the caustic. Mercerizing, in reality, is the chemical action of caustic soda on cotton fibers under tension, with the tension being the mechanical means of producing a luster. Cotton

fibers could be mercerized without tension to produce an increased affinity for dyestuffs, and an increase in breaking strength, but they would not attain a silky luster.

When the cotton fibers are penetrated by concentrated caustic they undergo a peculiar physical change. The inner cells, which appear to absorb the alkali, begin to swell at once, pressing on the outer walls and changing the ribbon like shape to a cylindrical form so that it has a hair-like appearance, and becoming somewhat translucent to light, although still firm in structure. The fiber, also, begins at this point to untwist itself, and if permitted to do so it would shrink considerably in length, but by keeping the tension on both ends the shrinkage is prevented and consequently the swollen inner cells smooth out all the convolutions on the surface, causing it to become smooth and even—capable of reflecting light with but little scattering of the rays. In summary: the swelling, untwisting, change in structure, and the mechanical prevention of shrinkage in the cotton fiber, all accomplished by the treatment with concentrated caustic soda, gives us the product which is known as mercerized yarn.

BURTON F. MITCHELL,
author of this discussion on mercerizing, is superintendent of the mercerizing plant of the American Yarn & Processing Co., at Mt. Holly, N. C. He is also chairman of the mercerizing division of the Southern Textile Association.

After-Treatment of the Yarn.

After the actual mercerizing takes place it is necessary to remove the concentrated alkali from the yarn, and this is done by washing with water, and souring with sulphuric acid while the yarn is still under tension. The tension being required until all the alkali has been neutralized by the acid to prevent the possibility of shrinkage which would dull the luster. The proper strength of the acid to be used is determined by the amount of caustic left in the yarn, which in turn is regulated by washing.

Following the souring process the yarn must be thoroughly washed, as any caustic or acid left in the yarn would eventually bring about deterioration of the fibers.

Another treatment, and one on which a majority of the mercerizers disagree, is the after treatment with oils, or chemicals, to lubricate, or soften the yarn. Many mercerizers use for this purpose such substances as vegetable oils, mineral oils, tallows, waxes, and various chemical combinations. However, some use only a volatile alkali to neutralize any excess acidity, and finish off with a warm water bath.

The two main types of oils are mineral and vegetable, and as these are bases for most all the softeners and lubricants it is unnecessary to take up the chemical combinations. It is a recognized fact that a mineral oil is the best lubricant for anything, ranging from machinery to yarn, but it is considered by competent dyers as being a dye resistant, and necessarily would have to be removed entirely before the yarn could be dyed uniformly. Vegetable oils are dye assistants, but are not so good as lubricants, and they are very likely to become rancid with age.

Good Packing is Necessary.

Even when all of the processes that have been mentioned have been carried out to perfection it is still possible to ruin the yarn as far as the knitter is concerned. The care with which the yarn is put up and packed determines to a large extent the percentage of waste production on the knitting machine. I mean by this, that it is possible to have perfect mercerization, and yet in the subsequent processes of quilling and winding to handle the yarn in such a manner that the resulting package will not meet the knitters' demands.

It is absolutely necessary to use the utmost care in handling all yarns going to a knitting machine, because a few breaks mean a loss in production, broken needles, and expensive waste.

In the preparation of yarn for the knitter, the mercerizer must strive to produce a finished product that shows good mercerization, and which exhibits careful winding and packing. The one without the other would not meet the modern knitters' demand for a well finished mercerized yarn. Were we to consider the mercerization as 50 per cent and the subsequent disposition as the remaining 50 per cent to produce a 100 per cent perfect yarn, the importance of the two—mercerizing and after handling—could be appreciated.

Additional Annex Required for Textile Show.

Contract has been awarded for a temporary addition to Textile Hall, Greenville, S. C., for the Southern Textile Exposition, to be held October 15th to 20th. When the steel annex was completed last Spring, it was thought it would provide space enough to house all of the exhibits outside of the main building, but the demand for exhibition space has required an additional building, which will be a wooden building, two stories high, and which will have the appearance inside of being part of Textile Hall itself. The steel window frames will be removed from a number of the large bays. The temporary building will also connect with one of the main aisles of the new annex.

New Courses at Clemson College.

Realizing the ever-changing and rapidly advancing needs of the textile industry of the South, the Textile School at Clemson College, S. C., have announced several new and special courses along various lines of textile work next September. On account of the increasing importance of chemistry in the textile industry, one of these courses will be a full four-year course in textile chemistry and dyeing. This course includes the full four years' work in the chemistry department of the college with special work in the junior and senior years in the textile chemistry and dyeing department of the textile school under Professor Mullin. Opportunity will also be given for special work in physical and colloid chemistry, both of which play an important role in the textile industry. This course leads to the B. S. degree and is designed to meet the needs of bleaching, dyeing and finishing industry of the South. The school will offer an optional course next semester in the chemistry of cellulose, which will be followed by a course on the chemistry of rayon.

Finishing of Linen Cloth and Toweling

Continuing a Discussion of Processes and Equipment Used in Handling these Goods in the Finishing Plant

By T. Woodhouse and A. Brand

Calendering and Allied Finishing Processes.

The flax fiber is unique in its spinning properties, inasmuch as it is probably spun in a greater range of counts of yarn than any other fiber—natural or artificial. Whereas, counts up to 200 leas per pound are comparatively common in commercial fabrics, counts up to and including 400 leas per pound are occasionally spun for special purposes, and it is on record that 800 lea yarn was spun by hand at the great Crystal Palace Exhibition in London in the year 1851. The extreme fineness of this 800 lea yarn may be realized when it is known that there are over 136 miles required to make one pound. So far, however, as the actual number of yards per pound is concerned, the foregoing length of 136 miles per pound has often been exceeded in cotton spinning for 400s cotton count equals 191 miles per pound.

Similarly, linen fabrics are made in a great range of textures, from the lightest of sheer lawn cloths to the heaviest double warp flax canvasses. Hence, it follows that there is a correspondingly great range of finishing processes or routines, appropriate to the varying constructions of the fabrics, and to the different purposes they are intended to serve. As a rule, the finished effects on the fabrics are not the result of the operation or action of one machine, but of a complete series of operation performed in a number of machines. Nevertheless, the group of machines to be dealt with in this section, and the sections immediately succeeding it, may be regarded as the finishing machinery proper, because in them are applied—in a manner characteristic of the machine and the resulting finish—the finish-producing elements—heat or pressure, or both.

The group of machines mentioned produce finishes by one or more of the following six processes: Calendering, chesting, glazing, chasing, mangling and beetling. These six processes are carried out in three machines, the calender, the mangle and the beetling machine. In the present article it is intended to cover the calendering processes, but it is necessary to mention the others, as the calender may be used alone for certain types of finish, or it may be used in conjunction with other machines for different types of finish. For example, the process of calendering is sometimes a preliminary operation to the chief finishing process of mangling or of beetling.

For the reason already indicated; that is, the immense range of types and weights of linen fabrics regularly made, calenders are made with from three to ten rollers or bowls. The greater proportion of linen fabrics is finished in machines with from three to five bowls. The three-bowled calender is used for the fine light fabrics, and where a soft finish is desired, whereas, the five-bowled machine is chiefly used for the medium weight and heavy fabrics. An exception to this rule is the case of double-warp flax canvasses which, although often very heavy fabrics, are most usually finished in three-bowled machines. The reason for this is that these cloths are mainly used for strictly utilitarian purposes, hence a high degree of finish is not necessary. These fabrics are seldom damped.

Most of the calenders used for the heavier end of the trade are very heavy machines, and necessitate special foundations; these foundations often take the form of a reinforced concrete raft or block from 12 to 14 inches thick. The net weights vary from fully 10 tons for a narrow 46-inch wide machine up to 25 tons for a 90-inch wide machine. The widths vary from 46 or 48 inches up to 160 or 170 inches. Wide machines, such as 90- or 96-inch machines are most commonly used; they can deal with fabrics up to within an inch or two of their full width, and, at the same time, may be employed when necessary, to deal with two, three or even four narrow pieces simultaneously. The bowls are made from chilled cast iron or from hard, close-grained cast iron; they may also be made from compressed paper, or from compressed cotton, and, in some cases, from wood, e. g., sycamore or plane-tree.

The materials used have a direct influence on the type, feel, and appearance of the finish that is obtained. Heat is obtained by passing steam at low pressure through one of the iron rollers, or by heating one of the rollers with the aid of gas and air. The former method is most often preferred, since, with the latter method, there is some danger of accidents by explosion.

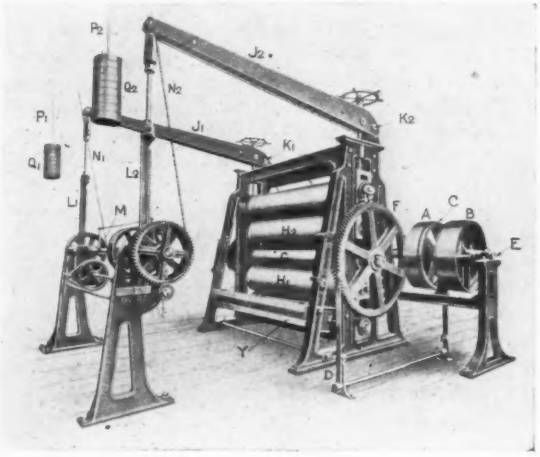


Fig. 7.

Before dealing with the different types of finish obtainable from the calender, it will be advisable to discuss several typical machines, and for this purpose is introduced Fig. 7, which illustrates a 5-bowled rack gear chesting calender made by Messrs. Urquhart Lindsay and Robertson Orchar, Ltd., of Dundee. This type of machine is distinguished by the term "rack-gear" to denote the means by which the pressure is obtained, and in contra-distinction to the type in which the pressure is produced by hydraulic means.

In Fig. 7, motion is imparted to the machine by means

of belts operating on the driving pulleys *A* and *B*. There are thus two driving belts, one of which is open and the other crossed, hence it follows that pulleys *A* and *B* revolve in opposite directions. Between the two pulleys is a double cone clutch, part of which is seen at *C*. When the control handle *D* is in the central position—that indicated —no motion is given to the machine; but, when the handle *D* is moved to the left or to the right, the cone clutch *C* is put into driving contact with pulley *A* or with pulley *B* respectively, and the driving shaft *E* rotates in the direction corresponding to the particular pulley and to whether the belt is open or crossed.

A double helical pinion on the main shaft *E*, and immediately to the left of the pulley *A*, gears with the correspondingly toothed wheel *F*, keyed to the hollow arbor of the center iron roller or bowl *G*. The remaining four bowls are driven by surface contact. The two marked H_1 and H_2 are rotated by contact with the center bowl *G*, and the top and bottom bowls by contact with bowls H_2 and H_1 respectively, starting from the bottom, the five bowls are arranged as follows: Bottom iron bowl, bottom paper bowl, center iron or steam-heated bowl, top paper bowl, top iron bowl, or chesting bowl.

In a 90-inch wide calender the pressure on the bottom bowl, which is usually 24 inches in diameter, may occasionally exceed 25 tons, hence it is necessary that the bearings of this bowl must be sufficiently great in diameter and length in order to reduce the pressure in pounds per square inch of projected area to reasonable limits. It is also necessary that the main framing and cross rails should be strong and substantial in design and construction; that this is the case is obvious from the illustration.

The two paper bowls H_1 and H_2 are about 27 inches in diameter when new, and are built up from discs of paper, hydraulically compressed until the density of the paper alone is about 20 pounds per inch of roller width. To get the best results, the paper must be of good quality, and be kept perfectly free from moisture during the compressing operation. The building up of the paper bowls is done in sections of 12 to 15 inches at a time, that is to say, six or seven stages in a bowl for a 90-inch machine, and, at the completion of each stage, the pressure is maintained for about 24 hours. Such rollers are naturally very high in first cost, and so every care must be taken in the operation of the machine to prevent damage to the surface and to secure equal wear all over the surface. When unequal wear occurs, the bowls are skimmed true, and this operation may be repeated until a diameter of about 18 inches is reached, after which replacement is necessary.

The center bowl *G*, Fig. 7, is supplied with steam at a pressure of 25 to 30 pounds per square inch (say 40 to 55 per square inch absolute) with a temperature of 267.1 degree F. to 268.9 degree F. The condensed steam is discharged at the opposite end of the bowl through a siphon outlet pipe, connected in series with a suitable form of steam-trap in order to prevent waste of steam. The two upper bowls in Fig. 7 (paper and iron) are respectively similar to the two lower bowls in all essentials.

Pressure is applied to the bowls by means of the long, built steel levers J_1 and J_2 fulcrumed at K_1 and K_2 respectively. From the outer ends of these levers depend racks L_1 and L_2, the teeth of which gear with pinions on the shaft *M*, to each of which are keyed chain wheels from which chains N_1 and N_2 pass to guide pulleys fixed near the roof of the building. To the opposite ends of these chains are fixed rods P_1 and P_2 upon which a series of round weights Q_1 and Q_2 are suspended. The weights are approximately 40 pounds each, but due to the mechanical advantage of the complete system, each weight results in a total pressure on the rollers of about 2000 pounds, or, say, 18 cwt. The levers have an advantage of about 12½ to 1, and the rack pinion and chain wheel an advantage of about 4 to 1; hence, the combined mechanical advantage is as under $12\frac{1}{2} \times 4 = 50$ and 40 pounds $\times$ 50 = 2000 pounds.

An illustration of another type of calender, by the same machine makers, appears in Fig. 8. The calender itself is similar in all respects to that shown in Fig. 7, except that the pressure is applied hydraulically, and hence the machine is termed a five-bowled hydraulic chesting calender. Where the parts of the machine in Fig. 8 are exactly the same, or have the same function, as corresponding parts in Fig. 7, the same reference letters are used in both illustrations.

Pressure in Fig. 8 is obtained by means of a pump—not shown— which supplies water at high pressure through

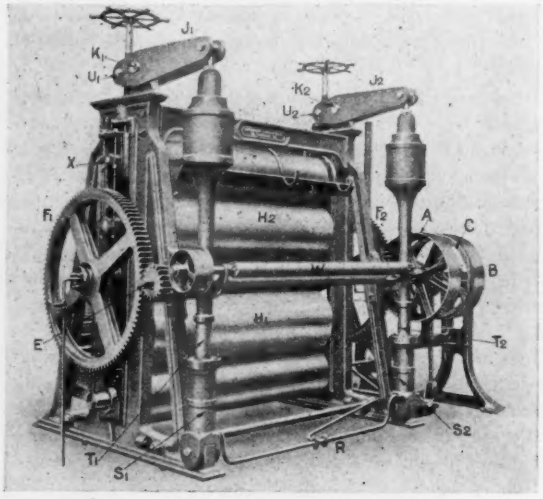


Fig. 8.

the steel piping *R* to the cylinders S_1 and S_2. When water is admitted to these cylinders S_1 and S_2, it raises the rams T_1 and T_2, and thereby causes the longer arms to fall. Hence, due to the respective positions of the fulcra K_1 and K_2, and of the points of application U_1 and U_2, the upward movement of the rams results in a downward pressure on the calender bowls.

Where the operation of chesting has to be performed on the calender, some form of stripping motion is essential. This motion usually takes the form of a simple roller, sometimes of mild steel tube and sometimes of wood, which, like the rack gear, is independently driven by means of tight and loose pulleys or by a simple form of cone clutch. A stripping roller can be seen at *W*, Fig. 8; in this case the drive is by belt on the tight and loose pulleys seen on the left and immediately in front of the small pinion *E*.

In the process of chesting, the cloth is wound full-width around either the top paper bowl or the top iron or chesting bowl. When the process is completed, it is necessary to remove the whole of the pressure on the bowls and to raise

the bowl on which the cloth is wound clear of the bowl immediately beneath it.

When chesting has been performed on the iron roller, the operation of unwinding the cloth involves the raising of the top roller only; but, on the completion of chesting on the upper paper roller H_2, the removal of the cloth involves the raising of both the upper paper roller and the top iron roller.

The raising of the bowls is accomplished by special gearing which reverses the usual direction of motion of the rack pinion shaft. When all the pressure has thus been taken off the bowls, further movement of the levers J_1 and J_2 results in the rollers being raised by means of adjustable links, best seen at X in Fig. 8. When the outer layer of the coiled cloth is quite clear of the bowl immediately beneath it, the outer end of the roll is tucked round the stripping roller W, and the latter is then put in motion to coil the cloth around itself. When the coiling operation is completed, the stripping roller W with its contents—is lifted clear of its bearings and transferred to the back of a measuring machine, in which the roll of cloth is run off and measured.

Another important point in the operation of a calender, and a point which it is necessary to discuss in some detail, is the means employed to secure the necessary tension in the fabric. The means is relatively simple, but it lends itself to a great variety of methods. It consists in providing a series of five tension bars or rails, seen in position at Y in Fig. 7; the cloth is passed over and under these rails in one of a fairly large number of different orders. The object is to spread the fabric to its full width, to eliminate cockles and creases as far as possible, and to secure the necessary tension in the fabric by efficiently braking or dragging the fabric in its passage from the loosely-folded damped condition to the nip of the calender bowls. Because of the use of tension bars or rails, the operation is most commonly known as "railing".

The method of railing employed depends on a number of factors, the more important of which are the kind of fabric being finished, the relation of the loom width of the fabric to its finished width and the type of finish being produced. Light weight fabrics, such as plain linens, cannot withstand so great a degree of tension as heavier fabrics, such as, for example, huckaback roller towelling; hence, the railing for the former class of fabrics is never so severe as that for the latter class. Again, the whole of the finishing operations so far considered tend to increase the length of the fabric and to decrease the width.

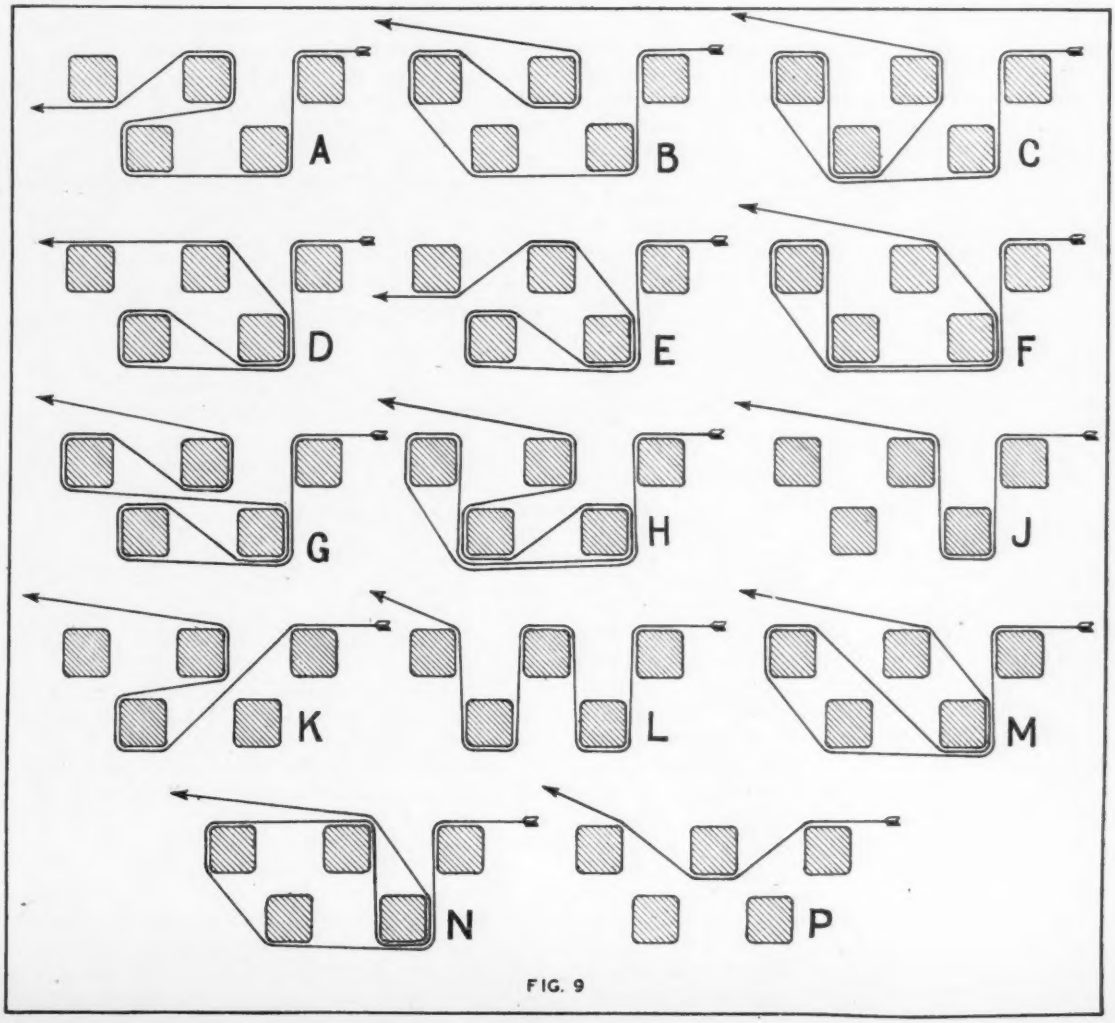


FIG. 9

To insure that a particular fabric eventually will become the desired finished width, it is necessary to make due allowance for the variation in width and length. Hence, so far as width is concerned, the width of a fabric as it comes from the loom is always greater than the required finished width. Should the loom width of the fabric be slightly greater or less than is actually desired, the fault may be corrected within certain limits by alterations in the system of railing. Lastly, the operation of chesting has a tendency to widen slightly the fabric, hence, if a fabric is to have a chest finish, due allowance must be made in the railing for the tendency mentioned.

Typical examples of different modes of railing are depicted in diagrammatic form in Fig. 9. The arrow-headed lines indicate the direction of the cloth in each case. At *A* is shown a light form of railing, used where the loom width is only slightly in excess of the required finished width; it is often employed for railing the cloth for the first run through preparatory to the so-called double chest finish. In some textile districts, the method shown at *B* is termed "top single rail", *C* the "three-quarter round rail", and *D* the "single cross rail". The method shown at *E* is very similar to the single cross rail *D*, and produces practically the same tension on the fabric, but the cloth passes under the last rail, i. e., the one next the calender bowls.

The methods of railing indicated at *F*, *G*, and *H* are all types of severe methods of tensioning, and can only be used with safety on suitably strong fabrics. The first mentioned, *F*, is often called the "round rail", whereas *G* is termed the "double cross rail" or, in other textile districts, the "canvas rail". Lighter methods of railing are indicated at *J*, *K*, *L*, *M*, and *N*, and one of the lightest possible methods is that shown at *P*.

In determining the type of railing that should be used, due consideration must be given to all the factors influencing the operation, and the type of railing chosen should be the lightest that is practicable. In no case must the fabric be stressed beyond its capacity, and in no case should the fabric be reduced below the required finishing width.

(To be Continued.)

Saco-Lowell Moves Kitson Plant.

At a meeting held recently the directors of Saco-Lowell Shops voted to consolidate the operations of the Kitson plant into the plant at Newton Upper Falls, Mass. A careful survey of the two plants made by the management disclosed clearly that greatly increased operating efficiency and substantial economies would result from this consolidation, it is stated. The Newton plant has over half a million square feet of floor space, and is equipped with a new and modern foundry, with adequate capacity to take care of the consolidated operations, without sacrificing in any way the capacity needed for the manufacture of cards and drawing. For some time past the castings for the Kitson plant have been made in the Newton foundry. The consolidation will be completed by early Fall. It will give the company two large, compactly arranged plants, one in Newton Upper Falls, making opening, picking, carding and drawing equipment; the other in Biddeford, Maine, making roving and spinning equipment.

New Union Special Triple Stitch Felling Machine.

Union Special Machine Co., Chicago, Ill., have recently introduced a new triple stitch overall felling machine. Feeding off the arm and giving ample room for sewing heavyweight garments are among the features emphasized. It is adaptable for sewing overall, denim, khaki, and other heavy weight cloths, it is pointed out, sewing easily without wrinkling the goods. The arrangement of the needles in this machine, so the left-hand needle comes in front, it is pointed out, aids in making short curves for inseaming, eliminating trouble with the outer margins in crossing seams. In using this machine, known as the "Thirty-five eight", for overalls, the completed backs are placed at the left of the operator, and the finished fronts are hung over a 2x4 projecting out from under the table at the girl's right. Inserting the backs with her left hand and the fronts with her right, the operator can fell down the left leg, up and down the inseam across the crotch, and complete the work sewing up the outer seam of the right leg, it is explained. The machine is then stopped with the needle bar up, the presser foot is lifted, and the garment is pulled away from the cylinder.

Spain to Destroy Obsolete Textile Machinery.

Madrid, Spain, April 28.—In a move to reduce the cost of textiles in Spain, the Spanish Government is reported to have ordered that textile machinery more than 40 years old be destroyed in one year and sold as scrap. To replace this equipment, it is understood that machinery may be imported duty free, provided the prices of the Spanish textile machinery builders are ten per cent higher than those on imported machines. Under the decision the Government will pay a maximum premium of 1000 pesetas ($167.70) for each textile machine destroyed which was bought between 1890 and 1920, the amount of the premium depending upon the age of the machine. Large imports of textile machinery by Spanish manufacturers are expected as a result of the law. —*From Iron Age.*

New Yarn Agency in Charlotte.

A new yarn selling agency, McBlair & O'Hara, has been formed with offices in the Commercial National Bank Building, Charlotte, N. C. Both members of the firm are well known to the southern textile trade. Mr. McBlair was for nine years with the Gastonia Cotton Yarn Company of Philadelphia. For four years he was manager of the New England office and for the past two years has been manager of the southern office. Mr. O'Hara was for eight years connected with the southern sales offices of the Stafford Company. More recently he has been with the Excelsior Yarn Company.

The new firm will handle cotton yarns of all descriptions, both carded and combed and also mercerized and dyed yarns. In addition they will handle rayon, silk, worsted, combination, natural and dyed yarns. They will also handle the converted rayon yarns of the Yarns Corporation of America.

Cost Accountants Consolidate.

Edward C. Hovey, certified public accountant, Greenville, S. C., and Cooley & Marvin, accountants and engineers, 15 Ashburton Place, Boston, Mass., with branches in Chicago and Greenville, announce their association as public accountants and engineers, with offices at Greenville.

Money and Monetary Systems

A Brief Talk About a Subject That Is of Interest to Most People; Development of What We Call Money

By L. H. Hodges and H. L. Herring.

This article is one of a series which has to do with the fundamentals of business, or more properly known as Industrial Economics. These articles are being published from month to month. Each one is a unit in itself, although forming an integral part of the entire series.

Practical mill men like practical material and these articles are designed to meet the needs of textile operating executives who are interested in knowing more about the laws governing business and industry. The entire series has already been used by a large cotton mill organization in the South in its educational work, and this organization found the material to be very practical and effective.

Each article lends itself to discussion by groups of mill men, as well as being helpful and interesting reading. Naturally the articles are brief and in attempting to cover this large field, only the most important points have been considered.

SINCE the dawn of history special qualities and abilities of men and natural resources have made some exchange of products and services necessary. With the development of civilization and its attendant division of labor, the need increased for an adequate medium of exchange, or money, and passed through several stages. At present with the elaborate specialization of production, a break-down in the monetary system can paralyze the economic life of a nation and upset its relations with other countries as well as cause chaos within its own boundaries.

Definition of Money.

"Money is something which is specially designed for use as a medium of exchange and specially devoted to serving this purpose. A medium means a go-between, and money is used as a medium of exchange when goods and services are transferred from one owner to another not directly as when one horse is traded for another, but indirectly, as when a farmer sells wheat for money and uses the money to buy something else."—Roberts.

Stages of Development.

In very primitive society the exchange took place directly in what we call *barter,* by which people "swapped" one thing for another. It is not likely that pure barter ever developed very far, however, since it is so hard to accommodate to practical uses. The farmer may have nothing he wants to sell but a cow and may want to buy nothing but some salt and not want the total value of the cow in salt.

Barter even among very primitive peoples soon centers around some one thing in general demand which may be used as a sort of *commodity money* to make exchanges easier. Wheat, wampum, hides, tobacco, and hundreds of other articles have at some time or place been used as money. *Metals* have always been among the moneys of man, with the development of *coins* as an early advance in their trading systems. The tendency to use such money grows with their economic progress and becomes limited to the precious metals, *gold and silver,* and within the last fifty years most of the world has come to use *gold* alone as its standard. Most commercial countries find that they are further convenienced by *paper money,* issued with their gold as a security, and finally some, like the United States, do a large shade of their trading by means of *Credit Money.*

Money performs several functions. As stated in the definition, it serves as a *medium of exchange.* A person with one article exchanges it for "money", which is only some other article more easily exchangeable than what he had. He can then use this article when he wishes to exchange for things he needs.

Quite as important as a medium of exchange is its use as a *standard of value.* Without some such common denominator we should have to remember the value of every article in terms of all other articles. The quoting of prices would indeed be a clumsy business.

A third major function of money is to serve as a *standard for deferred* payments. Promises to pay in the future for value received in the present is only possible by using money as the basis of the deal.

Characteristics of a Good Money.

When we consider the characteristics of a good money we can readily see why, as trade grew, various moneys proved unsuccessful.

1. Value—if money is to measure value, it must itself have value. Paper money will have no value if not backed up by gold or silver.

2. Acceptability—it must be universally desired or at least acceptable.

3. Divisibility—money must be of some material that can be divided and sub-divided without destroying its value. A large diamond is worth more than several small ones together weighing as much as the big one.

4. Homogeneity, or sameness all the way through is necessary to successful division. The hind quarter of a beef is worth more than the same weight in front quarters.

5. Portability is best attained when great value is compressed in small bulk. Cotton would not be a good money on this account.

6. Durability is necessary to prevent depreciation between transactions. On this score, cotton would be a much better money than many things people have used as money.

7. Cognisability, or the case with which it may be recognized, is necessary to prevent circulation of counterfeit money.

8. Stability is necessary because of the use of money as a standard of deferred payments. (Adapted from Seager).

Monetary System.

The monetary system of exchange grew up to meet the needs of trade, but it has been much aided by government sanction and regulation. Early rulers retained the right of coinage charging a fee for it. It is now considered one of the great functions of modern governments to manufacture the money and to insure, as far as possible, a reliable system.

"The monetary systems of most modern states consists of three different kinds of money, i.e., standard, token, and credit money. *Standard* money is *that to the value of*

which the values of all other kinds of money in circulation are adjusted. It may be self-regulating, as when the law declares that a certain weight of the metal selected for the standard shall constitute the standard coin and permits all persons bringing such metal to the government mints to have it converted into coin either free or on the payment of a small fee, called seigniorage. This system is designated "free coinage", and has been adopted by all the more important commercial nations. *Alternative to it is the system of "fiat" money, that is, money issued on the authority of the government and made to circulate by being declared a legal tender.* Such money is usually accepted at the outset with some misgivings, but after a time people become accustomed to it, and if the amount issued is controlled so that there are no violent changes in the value of the monetary unit, it may serve nearly as well for ordinary transactions as self-regulating money.

"Token money is money which is issued for use as small change in connection with minor transactions. It is usually made of a cheaper metal than the standard and put out in just the quantity that suits the convenience of the business community. *Credit money supplements standard, and is issued on the credit of the government.* It is redeemable in standard coin on demand, and differs from token money in that it is designed to serve as a medium of exchange for large as well as small transactions. *As business communities learn to appreciate the superior convenience of paper money, the field for credit money* steadily widens. In the United States a stage has already been reached where credit and token money constitute, with credit substitutes for money, such as checks and drafts, *practically the entire medium of exchange of the country."*—Seager.

Greshams Law.

Government has long tried to keep money in circulation merely by decreeing that it is money. The futility of trying to go against natural law led Sir Thomas Gresham, in the time of Queen Elizabeth in England, to the statement of the famous law that bears his name. It is to the effect that cheap money will drive out dearer. The reason for this is that if two moneys—metals for instance—of different value are in use people will sell the more valuable for commercial use, thus getting more for it than the face or coinage value in terms of the cheaper. Or they will tend to hoard the better money and pass on the less valuable. We see a small example of this in the way we all pass on a nicked coin or a slick one.

When our system was established in 1792, the ratio adopted for the free coinage of silver and gold was 15 to 1, or 15 ounces of silver treated as 1 ounce of gold. Under this arrangement gold proved to be undervalued and consequently did not circulate. The standard of the country became, in fact, silver. Much investigation about 1831 pointed out that the market value was 15.5 to 1, and that it was impossible to keep two metals circulating at once since they were bound to fluctuate some in terms of each other. The Congressional investigators advised that silver be made the sole standard.

About this time gold was discovered in the Appalachian Mountains, and the demand was made to keep gold. The ratio was changed to 16 to 1 so that silver was undervalued and went out of circulation. This was inconvenient as small coins were needed. It became necessary to make these with a larger proportion alloy so that the face value was more than the bullion value or a value as metal. This was about 1853.

As no more silver was presented for coinage, in 1873 free coinage was made to apply only to gold. About that time several European countries changed from "bimetallism" to the gold standard and at the same time much silver was produced in Colorado, Utah, and Nevada. Agitation for the free coinage of silver became so persistent that in 1878 Congress compromised by arranging for the treasury to buy a limited quantity of silver monthly and coin it in the hopes that the increase in the demand for silver would raise the price of it equal to gold and then establish free coinage. But the price went down so in 1890 the monthly amount was increased enough to take practically all the silver mined so that it amounted to free coinage. After a brief rally, the price went down and fearful that the country would soon be on a silver standard, President Cleveland called Congress in a special session in 1893 and asked for the repeal of the act for purchasing silver. "Free Silver" then became the leading political issue and though it was defeated in 1896, it was 1900 before the gold standard act was finally passed. Lately silver has recovered and become worth more than 16-1 of gold so that if we had retained the "limping standard" as the two-metal system was called, we should have had an even more complicated monetary situation during and since the war than we have had.

The silver dollars and silver certificates now in our monetary system are the result of the purchases from 1878 to 1893. As these form a relatively small proportion of the money, $550,000,000, against which some $455,000,000 in silver certificates are issued, and as the public has confidence in the monetary system of the country, they were an acceptable part of our system even when silver was cheaper than 16-1.

Paper Money—Fiat and Credit.

Since we have seen that even a strong government cannot by law keep up the value of any sort of money merely by declaring it money, why does not Gresham's Law result in paper money driving out silver and gold? It does unless the government is careful to see that only as much paper money is issued as may be readily redeemed in gold on demand. While paper remains redeemable on demand and at face value, few people want the gold, but as soon as there is a premium on gold, all want it. We have silver and gold certificates issued against the silver and gold reserves and the paper states that the coin is in the treasury —a sort of warehouse receipt. During the Civil War paper money of the Confederacy completely drove out gold because it was entirely "fiat" money; the Federal government issued an excessive number of notes which wavered in value with the fortunes of the Federal Armies. These notes had no reserve behind them but were merely "promises to pay." These "greenbacks" are still in our monetary system to the amount of nearly $347,000,000 backed by $150,000,000 in coin, and are able to circulate because of public confidence in the *policy* of the government to redeem them even if there is no law requiring it.

We have seen numerous examples of the excessive issue of paper money, with nothing back of it, in Europe recently and its disastrous effects. These examples and the

(*Continued on page* 1067.)

Package Dyeing in Circulating Machines

The First of Several Articles by This Author Covering Some of the Major Phases of Handling This Process

By Harold Schroeder

THE dyeing of cotton yarn in circulating machines is coming into greater prominence since the possibilities of package dyeing are being recognized as a source of quality dyed yarn in which the penetration and fastness are equally as good as any other method of yarn dyeing and may in some respects be superior at times.

Package dyeing was at one time not considered a very dependable method for producing level dyeings, and even today there exists in some quarters a lack of appreciation as to the efficiency of the modern circulating machine when properly handled and when not attempting a class of dyeing which it is not as yet fully capable of handling.

The dyer who comes new to a circulating machine dyehouse will find necessary almost a complete reversal of his previous dyeing methods.

Has Possibilities of Control.

In these closed machines the yarn is kept still, while the dye liquor is rapidly pumped through the yarn. This introduces difficulties which are peculiar to package dyeing, and it may be said that those difficulties are certainly not all solved yet, any more than any other method of dyeing is entirely free of its own inherent drawbacks, but there is one feature of a circulating machine that supports a hope for eventually approaching what a dyer would understand as perfection and that is, it offers the possibility by careful attention to its mechanism, of attaining perfect circulation of the dye liquor through the yarn.

IN THIS discussion of the circulating machine method of dyeing, Mr. Schroeder calls attention to the extensive possibilities it possesses for accuracy and precision. He discusses also the general principles of the operation, touching upon other factors which have a bearing upon the successful functioning of equipment of this type.

It seems a very generally accepted fact that the aim of every dyeing method, whether it be hand tub, or the very latest idea in rotary hosiery machines, is to attain as perfect a circulation as possible, and the fundamental idea at the back of almost every dyeing method is that this circulation is to be based on mechanical motion.

Chemical penetration agents by themselves, without mechanical effort, do not provide a means of uniformly spreading the dye liquor all through the goods. It may possibly be said that these valuable chemical aids to dyeing and penetration really do no more than point out the way for the dye liquor to travel. But that same dye liquor needs more than just encouragement on the part of some chemical penetrant. It needs a push from behind, whether that push is applied by lifting a skein or dropping a net full of hosiery into a boiling dyebath is immaterial, the fact remains that unless the dyebath and the goods are in relative motion the resulting dyeing is not likely to be as good as it could be.

The circulating machine offers the possibility of making that circulation almost perfect by careful attention to detail, in fact a circulation more perfect than any other type of dyeing machine and so may be expected to produce dyeings as good as the quality of the circulation.

These machines are really much the same as filters and any dirt which may be in the water or come from the yarn or be introduced in the dyebath, has not very much chance of being washed off the package. It usually remains on the yarn in such a fast condition as to be immovable until the yarn itself is mechanically moved, in such an operation as scouring after weaving or knitting.

Removing the Dirt.

The dirt which is so apt to collect on the package dyeings is not always preventable by the straining of the dye solutions or the chemicals. Most of the deposits, that are not plainly due to the packages having been dropped on the floor, may be suspected as having entered the dyeing liquor as perfectly respectable solutions but which have later, at some point in the dyeing process gotten into bad company and changed from useful solutions into coagulated colloids and so precipitated eventually on to the yarn.

Considerable work yet remains to be done on the removal from dyestuffs of these disturbing impurities which do not make themselves especially noticable in other methods, but which come to light in the circulating machine and which, while they usually have no influence on the eventual levelness of the dyeing, after mechanical scouring, yet do not add anything to the appearance of the dyeing and many times serve to dull the shade.

Application of PH Control.

Those learned gentlemen who appreciate the meaning and importance of the PH value may possibly see that in this field of circulating machine dyeing, where perfection depends on the use of crystalloids or non-coagulant colloids, there is a great opportunity for investigation. Some day we will have at our disposal the perfect protective colloid and then when that happy day does come, a great load of care will be removed from those who have to wrestle with circulating machines because then, the emulsified impurities from the yarn or from the dyestuffs or from the oils used, or from bad water or bad chemicals, will remain as emulsions and will later go down the drain pipe and out of circulation. But that perfect colloid and the necessary understanding of PH values which some day will help to solve many of our dyeing problems, do not as yet exist, as far as general knowledge is concerned.

A circulating machine dyer, to produce the best work capable of competing with dyeings produced by other meth-

ods, should recognize that his dyeings are, to a considerable degree, dependent on the mechanical condition of his machine and the quality and type of the package winding.

There really is nothing in the quality of the dyestuffs or in the skill of dyeing or in the use of chemicals that can under all conditions make up for a machine that is out of order or a package wind that is not adapted to the type of work being dyed, consequently it is necessary to fully check up on these points before commencing dyeing in order that the dyer's work be not unduly handicapped.

The function of the circulating machine mechanism is not, primarily, to establish pressure, but rather to start and then maintain uniform circulation. Pressure is not necessarily a guarantee that the resulting dyeing will be level or even penetrated. For example, a pump working against a closed valve would be making pressure but there would be no circulation, similarly a package wind that is too tight or which varies considerably in tightness from place to place is somewhat comparable to the example of a pump working against a closed valve.

Free, Uniform Circulation Desirable.

There is no great hydrostatic pressure in a rotary or paddle hosiery machine, yet the hosiery so dyed is well penetrated due largely to the free circulation, and the desirable condition in a circulating machine would seem to be also one of free uniform circulation. The fact that there is accompanying pressure may be due to the friction between the yarn and the freely circulating liquor.

The circulation that is so desirable and so necessary is the result of a balance struck between the capacity of the pump and the tightness of the wind, or the size of the package. The capacity of the pump is pretty definitely settled at the time of manufacture, so really it amounts to adjusting the wind to suit the machine.

Such precautions are not supposed to be necessary when dyeing dark shades or sulphur black, but today the circulating machine is being called upon for more delicate shades, not only in cotton but in synthetic fibers and it is with these special cases that such precautions as mentioned are so advisable. Particularly are they important when dyeing light shades with vat colors.

The circulation may be conveniently tested by filling the loaded machine with water to such a height that the pump has little or no hydrostatic head to overcome. If under these conditions the circulation is not free, that is to say a full stream of liquor, the pump should be stopped and the various outlet pipes examined for possible stoppages due to pieces of waste, etc. When these are proven clear the pump may be again started and a reading made of the pressure gauges attached to the machine. Should these be showing normal pressure and there still is no circulation or if the flow of liquor be obviously feeble, there is good reason to suspect that the package is too large or the wind too tight.

The temperature of the bath may then be slowly raised and usually it will be found that as the temperature rises there is an increase in the circulation until possibly at the boil or at least around that temperature a full flow of liquor is passing through the machine, indicating that at that particular temperature circulation may be obtained. Most probably, if now the bath is emptied and filled up cold, it will not be possible to start the circulation till the temperature is again raised.

Under these conditions, where it is necessary that the dyeings be strictly level the dyer has a choice of remedies.

The most obvious remedy, but one which is not always so quickly perceived to be the right one until after passing through an experimental stage of boil off oils, penetration agents, levelling agents, none of which are specially of value in such a condition in a circulating machine, will be to choose such dyestuffs which do not materially exhaust until at a temperature above that at which free circulation commences.

In other words, if circulation is free while the dyebath is cold, then it is safe to use dyestuffs which exhaust at a low temperature. If circulation be not free, until, say 140 degrees F., it will not be found safe to use dyestuffs which start to materially exhaust at say around 120 degrees F., but it will be necessary to search out dyestuffs which do not show special affinity until above 140 degrees F. Similarly, if it requires the boil to start free circulation, then it will be advisable to use dyestuffs which do not exhaust until at the boil.

By suiting the dyestuffs to the condition of the machine and the type of wind, the dyer will rid himself of a large proportion of possibly streaky dyeings. While it is undoubtedly possible to make many a successful dyeing with obviously unsuitable dyestuffs, there will, in the long run be almost as many unsuccessful dyeings as there were good dyeings previously, so the dyer may save himself much time by noting the exhaustion temperatures of his dyestuffs and replacing doubtful colors with others of slower powers of exhaustion.

There are now available on the market two main types of package windings which not only look different, but which have also quite different dyeing properties.

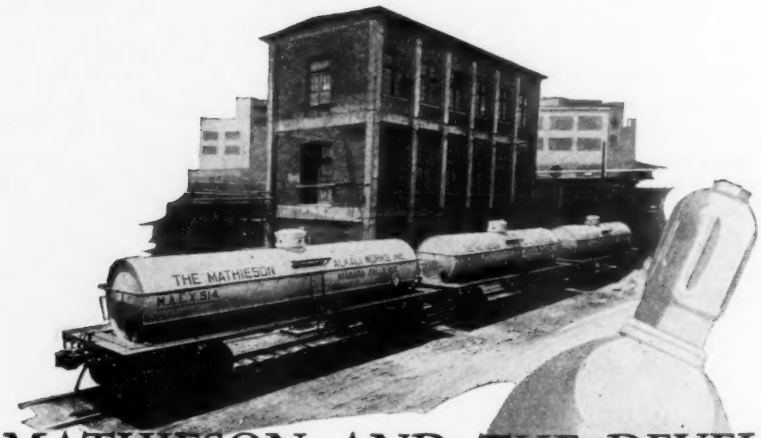
Different Types of Wind.

One winding machine produces a package which seems especially adapted to the dyeing of mercerized yarn. The designer of this machine seems to have arranged the mechanism so that there are many spaces in the package for liquid to get through and really the package is built somewhat on the lines of a sponge. This type of package is not so good with unmercerized yarn as it is with the mercerized yarn.

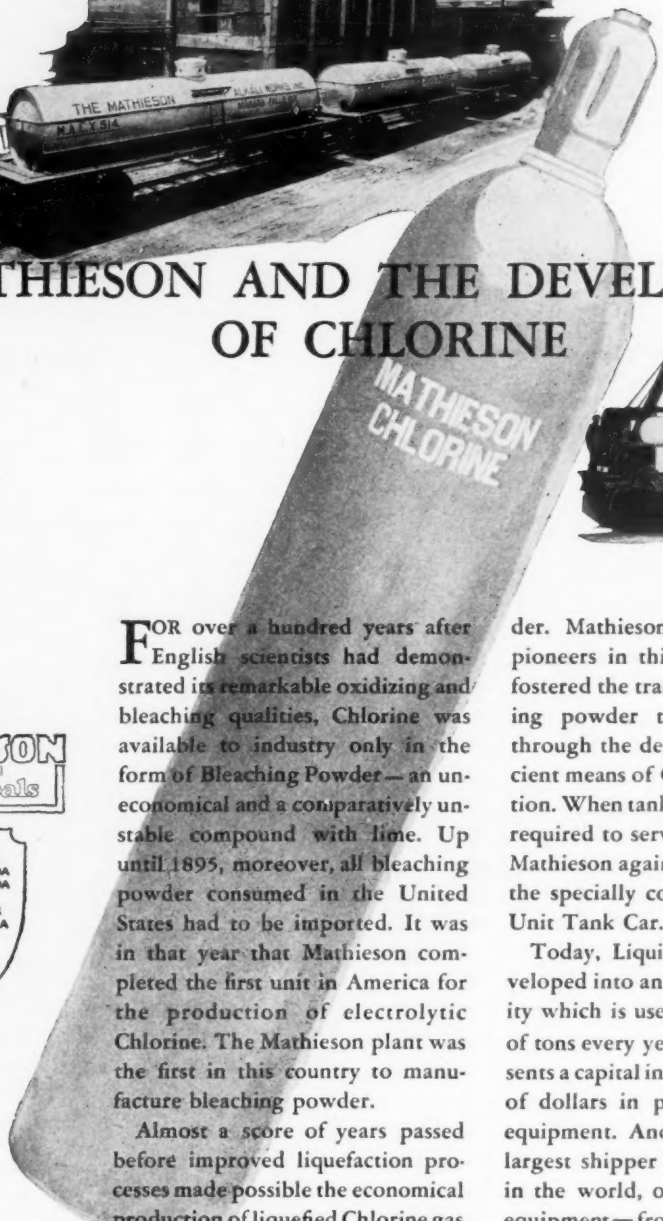
The other machine, which produces a package ideally adapted for the dyeing of common yarn is not so fortunate when handling mercerized yarn. The general effect of this package is that of a uniform column of cotton yarn, and why this should work the better when the yarn is not mercerized than when it is mercerized is difficult to explain. But a comparison of the two types of winding after the dyeing is finished will serve to show in a practical way that there is some radical difference in the circulation properties of the two methods of winding.

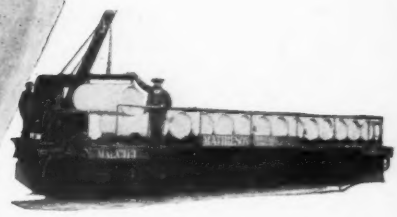
It will be found that, usually, what we may term the sponge package has remained soft and pliable through the dyeing operation and it would be reasonable to believe that yarn dyed on such a package would retain as far as possible its natural properties of softness and elasticity. The column package on the other hand will be found to most often have become hard, much harder than before dyeing and not only is it now more difficult to penetrate at low temperatures than it was previous to dyeing but it would appear reasonable to consider that this hardness is produced as the result of a strain on the yarn whereby some of

(*Continued on page* 1065.)



MATHIESON AND THE DEVELOPMENT OF CHLORINE





MATHIESON
Industrial
Chemicals

CAUSTIC SODA
LIQUID CHLORINE
BICARBONATE OF SODA
MODIFIED VIRGINIA SODA
SODA ASH
BLEACHING POWDER
ANHYDROUS AMMONIA
AQUA AMMONIA

FOR over a hundred years after English scientists had demonstrated its remarkable oxidizing and bleaching qualities, Chlorine was available to industry only in the form of Bleaching Powder—an uneconomical and a comparatively unstable compound with lime. Up until 1895, moreover, all bleaching powder consumed in the United States had to be imported. It was in that year that Mathieson completed the first unit in America for the production of electrolytic Chlorine. The Mathieson plant was the first in this country to manufacture bleaching powder.

Almost a score of years passed before improved liquefaction processes made possible the economical production of liquefied Chlorine gas in industrial quantities. Gradually Liquid Chlorine in steel cylinders began to displace bleaching powder. Mathieson was one of the pioneers in this development and fostered the transition from bleaching powder to Liquid Chlorine through the design of safe and efficient means of Chlorine transportation. When tank car shipments were required to serve larger consumers, Mathieson again was a pioneer with the specially constructed Multiple-Unit Tank Car.

Today, Liquid Chlorine has developed into an industrial commodity which is used by the thousands of tons every year and which represents a capital investment of millions of dollars in plant and container equipment. And Mathieson, as the largest shipper of Liquid Chlorine in the world, offers the utmost in equipment—from single-unit and multiple-unit tank cars to 100 and 150 lb. cylinders—for adequately serving every class of Chlorine consumer.

The MATHIESON ALKALI WORKS (Inc.)
250 PARK AVENUE NEW YORK CITY

PHILADELPHIA . CHICAGO . PROVIDENCE . CHARLOTTE . CINCINNATI
DEAL DIRECT WITH THE MANUFACTURER
WORKS: NIAGARA FALLS, N.Y. SALTVILLE, VA. · NEWARK, N.Y.

CURRENT TOPICS

Outlawing War.

Our Government has submitted to the governments of other countries throughout the world a treaty by which all governments signing it "solemnly declare in the names of their respective peoples that they condemn recourse to war for the solution of international controversies, and renounce it as an instrument of national policy in their relations with one another." That is as far as the treaty goes. If generally signed, as no doubt it will be, it will be known as the "outlawing of war." It is good insofar as it goes and perhaps can do no harm but as a step towards the universal peace the treaty may be over-valued until its insufficiency is proclaimed by the outbreak of war. Secretary Kellogg's interpretation accompanying the treaty makes it clear that the instrument will not detract from any of the "rights" now possessed by agreeing peoples and that it sets up no machinery of interpretation or enforcement. It is emphasized that any country would be entirely free to go to war in self-defense if attacked.

In modern times at least, all countries have gone to war in "self defense." That is what they make themselves believe. Germans probably will ever maintain that "aggression" on the part of "enemies" caused their country to send troops through Belgium for the assault on France in 1914. There is no way definitely of defining terms like "aggression" and "self-defense" as used in connection with wars. And to create one would mean the setting up of a *super*-government of the world.

"Outlawing war" movements follow every great conflict at arms. This one may succeed.

The Presidency is Safe; Think of Congress.

Logically, it seems singular that the national political campaign of this year is expected to be the most exciting if not the most interesting occurring since the mid-World War one of 1916. Emotionally, however, it isn't singular. Emotion rather than logic governs the "pitch" of campaigns, especially ones having to do with the Presidency. Emotional factors surmount, as rarely before, rational ones in the contest now beginning. The rational equations rarely have been less exciting.

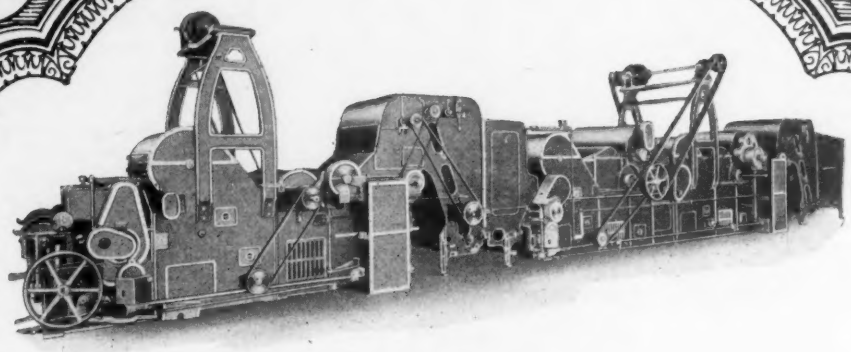
Never before did the two big parties nominate candidates so nearly alike. Both are men of excellent records and noteworthy careers that never before have clashed. Each no doubt is a strong admirer of the other. Judged by the record they are the two most efficient public administrators of this time. They differ very little in real views. In fact, it is probable that, philosophically at least, Herbert Hoover is slightly more of a Democrat than is Alfred E. Smith, and that Smith leans a little more than Hoover towards the traditionally Republican view of Government. For example, as Governor of New York Smith has been a centralizationist, while Hoover as Secretary of Commerce has endeavored to be a decentralizationist. Both of course will appear to disagree about the age-old question of tariff protection. But it is apt to be mostly for appearance's sake only. Insofar as predictable from what they have said and done in the past, Smith and Hoover would act in practically the same way on nine out of ten national public questions likely to arise during the next four years.

The personalities of the candidates are somewhat different—hence, partly, the expected rife emotional division concerning them. This division will be accentuated by supposed difference in views on certain more or less irrelevant questions, like that of prohibition. And by divergent backgrounds, especially in the religious sense. These afford plenty of excuse for anyone getting fully excited over the candidates—but, luckily, the excitement no matter how intense will do little harm. On election night any of us may go to bed feeling that, whatever the result, an efficient man has been chosen President and that, whatever the President's name, the ship of state may be expected to move along on an even keel after March 4th next.

Alikeness of the candidates finds reflection in the party platforms, which are essentially alike in themselves, even in being unlike the candidacy. Both Smith and Hoover are by natural tendency outspoken, decisive, clear in thought and word. Neither of the party platforms is so. Both of the written platforms will be forgotten, and well forgotten, before the campaign is half over. The candidates always are the real platforms, and this is particularly the case this year. Both Smith and Hoover are smaller and weaker men than the country conceives them to be if either of them, as President, should give serious thought to his party's wordy and all but meaningless current statement of "principles".

The platforms are of little account in adjudging the two parties aside from their Presidential candidates. The parties have become so much alike in their proclaimed thinking, or rather their evasion of succinct thought, that each of them will have to be judged more by adherents than by professions of faith. The parties as such figure logically in this campaign in relation chiefly to Congress. In fact, the wise voter, soundly interested in the future conduct of the Federal Government, well might dismiss from mind the Presidential contest and concentrate attention on the election of members of the next Congress. That's where the important uncertainties even as to "issues" may be determined.

Those radical groups that give genuine adherence to neither of the parties realize this; and, instead of making a futile bid for the Presidency, they are to endeavor to gain and hold a balance of power in Congress. Thus, for the first time there is to be a virtual third party movement with reference to Congress alone. And, though operating within the old parties, this movement will be more cohesive than either of the old parties will be as to Congress alone. Except in a few sections of the country, the fact that a candidate for the U. S. House of Representatives runs as a Democrat or Republican means nothing beyond its bearing on the priority going with control of the organization



SACO-LOWELL ONE-PROCESS PICKER

(with Synchronized Control)

Now Operating Extensively in both Northern and Southern Mills

ANOTHER triumph for SACO-LOWELL engineers. This one-process Lapper, designed especially for American mills, has been successful beyond the hope and expectations of its designers. It is a totally new Lapper and has been thoroughly tried out under practical mill conditions.

Its first and foremost advantage, the saving of labor, has been proven beyond a doubt. There is no handling of the cotton from the time it is fed to the Bale Breaker until the lap is removed from the calender ready for the Card-Room. Its efficiency is unexcelled.

On every installation, both North and South, our One-Process Picker with synchronized control, has given better results than were being obtained on the two or three process system, as regards cleaning, appearance of lap, and evenness yard for yard, and lap for lap.

Facts, figures, specifications, and organizations of Saco-Lowell one-process Picking in successful mills are now available. May we place them in your hands? Call on any Saco-Lowell representative.

The July issue of the Saco-Lowell "Bulletin" carries full details of the performance of these machines. Look for them in your copy.

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 Milk Street, BOSTON, MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

of either House.

The next Congress may be the most important one, especially to industry and business, since the war. It is virtually certain that it will undertake to revise the tariff laws. And in this as never before the individual will count for more than party alignment. There will be important legislation long delayed anent the railroads and all transportation. The farm question will be to the fore again, with McNary-Haugen types of proposed "solutions" fighting for precedence. Foreign questions bearing importantly on trade will be within the purview of Congress. And many sorry men are apt to slip into that body by reason of high emotionalism induced by essentially extraneous phases of the Presidential contest.

Another Huge Cotton Acreage.

In view of the tragic experience that befell them in 1926 and the complaints voiced, with much justification in 1927, by their spokesmen, it is difficult to understand why the farmers have put into cultivation of cotton one of the largest acreages yet reported for this product in America. The U. S. Department of Agriculture estimate for July 1 is 46,695,000 acres. This is in excess of the 1925 total and only 4.2 per cent less than the phenomenal one of 1926, as estimated on the same date. Those are the only two previous years of cotton acreages comparable to this one's. That of last year was practically the same as that of 1924, which seemed extraordinary at the time. This year's envisages an increase of 11.4 per cent over last year's. It is assumable from the figures for the last four years that the cotton acreage in this country will range, from now on, above a total of 45,000,000. This represents an increase of approximately 10,000,000, or about 25 per cent, above the range for the period of 1910 to 1923. This apparent expansion has come about, and been perhaps established for the future, during a period of extreme eccentricity for cotton. Average per acre yields have varied so widely as to indicate a gambling element of more than 25 per cent on this score alone. In some sections it is notoriously much bigger. On the score of price, the gambling element has been enormous during the last five years, the average price received by the farmers ranging from a high of around 35 cents to a low of around 10 cents a pound. Such fluctuations necessarily have meant manifold distressful deficits as well as, at times, surprising surpluses.

Yet the element of uncertainty seems to have no retarding effect on the planting of cotton; rather the contrary. Even in sections like the South Atlantic area, where in recent years the risks of low yield and low price at the same time have put the odds almost invincibly against the average grower, acreage appears to be on the increase—though still smaller than in pre-boll weevil times. It may be that the widened gambling element adds to other subtle fascinations of cotton growing, and this may mean that vaunted stability is of less practical worth than is commonly assumed.

It is noteworthy in this year's figures, as well as those for the last ten years as a whole, that the center of cotton growing is, however, shifting Westward. Acreage has increased most this year in Texas, Oklahoma and Arkansas and in only California and Arizona it is greater than it was in 1926.

A Scarecrow Problem.

A lot of people used to get excited about the "dangerous increase" in farm tenancy and absentee landlordism in agriculture. As often happens, the excitement was over what was mostly a scarecrow problem.

Recent studies show that tenant farming has increased only slightly, and that for the country as a whole and considering all factors it is just about what it should be. As for absentee landlordism, it is not much more than negligible. Most absentee owners of farms, it is found, are ex-farmers, who have retired or gone into other businesses. It was found that a very large proportion of owned farms were purchased by their present possessors, most of whom rose from the wage worker or tenant classes. Three-fourths of the farmers under 25 years of age are tenants but only one-fourth of those above 65 were so reported. Tenants of course include thousands who can get along better under the supervision that usually goes with tenancy, particularly of the "cropper" kind, than as owners.

Nearly 40 per cent of the country's farms are operated by tenants. The rate is much higher in the South than in most other sections of the country. This owes in part to the large number of negroes engaged in farming in the South.

A much larger proportion of persons on farms in every section own their homes than of persons in towns and cities who pay no rent for living abodes.

What the Southern Mills Are Doing.

The construction of two fine goods mill by Saratoga Victory Mills, Inc., a subsidiary of American Manufacturing Company of Brooklyn, N. Y., has been started. One is to be located at Guntersville, and the other at Albertville, Ala. Each unit will consist of 15,000 spindles and 500 looms. Housing for the operatives will necessitate the building of fifty houses in a modern village at each place. Robert & Company of Atlanta are the engineers.

It is reported that the Chiquola Mfg. Co., Honea Path, S. C., has purchased 300 E Model Draper looms to be installed in the building that has been erected for this purpose.

Work will soon begin at the Morgan Cotton Mill, Millen, Ga., on changing the fabric of the mill from chafer, a square weave, to cord fabric. The mill is to be re-floored and other changes made.

Pendleton Mfg. Co., Autun, S. C., has awarded through their engineers, J. E. Sirrine & Co., Greenville, the contract for the construction of a weave shed, to the C. M. Guest Co., Anderson. Work will begin as soon as possible. Additional looms will be installed in the new building when completed.

Announcement has been made that a new addition is to be built to the Echota Mills, Calhoun, Ga., involving the expenditure of $150,000. The new building is to be 185 x 150 feet and is to take care of new machinery. A large two-story warehouse and twenty new homes will also be built. The contractors are Chapman & Camel, Griffin, Ga.

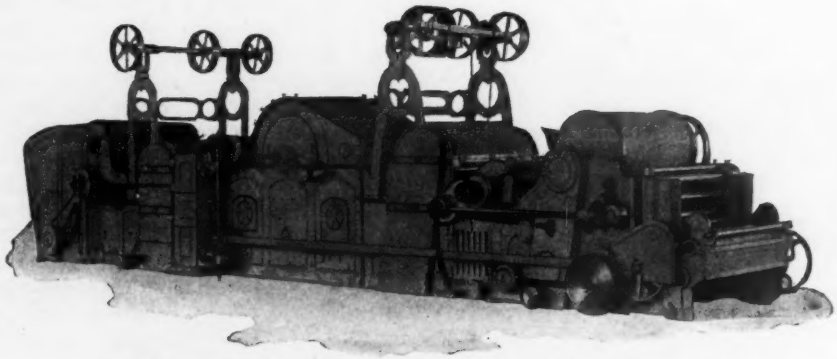
Lowe Mfg. Co., Huntsville, Ala., have started improvements costing approximately $250,000, including a new

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

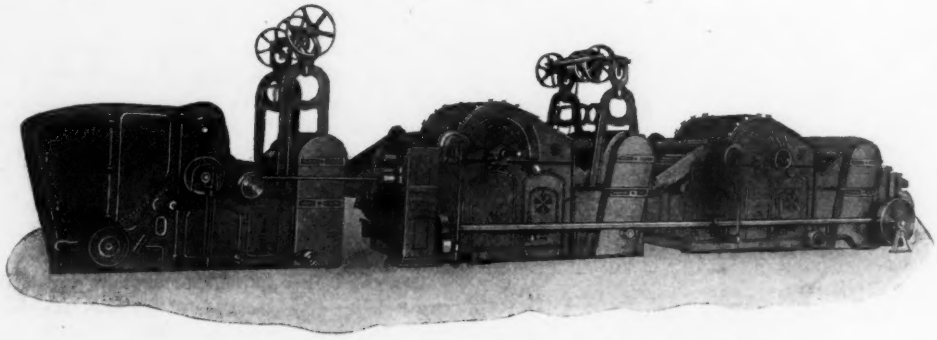
Southern Office, 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.

MAXIMUM CLEANING WITH MINIMUM BEATING



Combination No. 3 Feeder and Single Buckley Opener Breaker Lapper

Our BUCKLEY OPENER BREAKER LAPPERS have great cleaning power combined with gentle treatment of the cotton. Continuous gridded surfaces from cylinders to cages, full width feed, perfect regulation in weight.



Combination No. 3 Feeder and Double Buckley Opener Breaker Lapper

By employing more than one cylinder, it is possible to clean the lowest class of cotton upon the Buckley principle with a minimum of beating.

picker room 70 x 96 feet. Contract for construction has been awarded to the Gallivan Construction Co., Greenville, S. C. It is said that much of the old equipment will be replaced by new machinery.

Marshall Field Mills, Leaksville, N. C., will let contract shortly for a building 100 x 150 feet in which additional looms will be installed to weave rugs. It is reported that contract has been let for an extension to the boiler room and a warehouse 60 x 100 feet.

Announcement is made that the Chesnee Mill, Chesnee, S. C., is to build an extension to the weave shed to care for 500 new looms. The plans are in the hands of Lockwood Greene & Co.

Rocky Mount Cotton Mills, Rocky Mount, N. C., will construct an additional unit for manufacturing waste yarns into cord and other products.

It is reported that the Green River Mfg. Co., Tuxedo, N. C., will install additional looms.

Construction has been started on the new mill at the Gaffney Mfg. Co., Gaffney, S. C., which will replace the old building formerly known as No. 1 Mill. A new slasher room is also being constructed; it is a one-story building 40 x 135 feet.

Mansfield Mills Inc., Lumberton, N. C., are said to be planning to put 48 additional looms in vacant space in its weave shed.

County Moore Mills, Inc., Hemp, N. C., will install 30 wide looms, according to report.

Shelbyville Mills, Inc., Shelbyville, Tenn., are reported to be installing 60 looms and additional spinning frames.

The Poe Construction Co., Greenville, S. C., has been awarded contract for the installation of a complete sewerage system and disposal plant for the village and buildings of the Renfrew Mfg. Co., Traveler's Rest, S. C. It will involve a cost of approximately $30,000.

Lanett Bleachery & Dye Works, West Point, Ga., has let contract to the Gallivan Construction Co. for a new boiler plant. New boilers and steam turbine are to be installed. J. E. Sirrine & Co., Greenville, S. C., are the engineers.

Scottdale Mills, Scottdale, Ga., are reported to be planning to add to their loom equipment.

Lund Co., Inc., Rock Hill, S. C., the southern branch of the Lund Textile Corp., Fisherville, Mass., which has leased a one-story building, containing 36,000 square feet, will begin operations in a short time.

Clinton Silk Mills, Clinton, S. C., have purchased a site and expect to begin construction in a short time. The building will be 100 x 200 feet, one-story.

Taylor Textile Corp., LaGrange, Ga., capital $250,000 recently incorporated, plans establishing textile mill to manufacture goods, using special dyeing process.

Machinery is being installed in Eufaula Silk Mill, Eufaula, Ala., and operations will begin shortly.

Lockwood, Greene & Co., engineers for the plant of the American Chatillon Corp., at Rome, Ga., have placed contracts with Babcock & Wilcox Co. and Westinghouse Electric & Manufacturing Co., to the amount of over $100,000, for power plant and stokers, it is announced.

New England Mill Situation.

The strike of operatives in New Bedford was continuing at the end of thirteen weeks idleness on July 14th. The mills were reopened on July 9th, but little or no progress was made in resuming operations. A system of picketing covering every mill in the city had been organized by the United Textile Workers and a group of Socialist unionists calling themselves Textile Council. Great crowds were congregated at different mill gates under a form of picketing that was called legal but which in its essence was designed and maintained for the purpose of intimidating those who might care to work.

In three or four instances it was stated among the strikers that some operatives were in the mills at night. This led to gatherings of three or four thousand strikers and in the case of the Kilburn and Paige Mills serious disorder followed, consisting of the deliberate breaking of mill windows. There were no operatives in the mills at the time the strikers congregated, but the demonstrations were organized for intimidation purposes of a general character.

Toward the end of the week a few evidences were manifested of a determination to suppress the constant gathering of crowds before the mill gates. The socialistically-inclined agitators induced women and children to engage in the picketing system and wherever possible they encouraged women with babies to march along the streets carrying the babies in their arms. The tactics followed out by these strikers and those who were spurring them on were similar in many details to those that developed in the strike at Passaic, N. J. a few years ago.

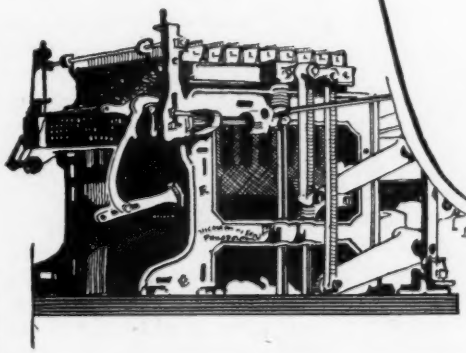
Reports were published in local newspapers and in some of the New York papers that dissension existed among the manufacturers representing the mills that are idle. A meeting of the manufacturers was held and a statement was issued signed by all of the manufacturers and giving notice that no change had occurred among the manufacturers since the notices of a ten per cent reduction were first posted.

A group of the agitators who had been working continuously in New Bedford went to Fall River (14 miles away) and began holding meetings to stir up trouble in that city. More vigorous efforts were made by the police force there to suppress the agitation and to keep demonstrations within orderly bounds. Threats of inducing strikes in Fall River mills are being constantly made by these agitators and the rule by which the old established unions exacted that a two-thirds vote should be cast in favor of any strike before it could become legal was changed so that slightly over a majority vote to strike will be sufficient. It is not likely though, that any strike will occur in Fall River as the mills of that city are running to less than 30 per cent capacity because of a lack of orders.

The continued toleration of disorderly and threatening demonstrations against those workers who have no union affiliations and who would work when the opportunity was afforded them is constantly lessening the confidence of many textile investors in properties located in New England centers. Up to the present time very little public action has been taken to express resentment against the socialistic gangs exploiting the New Bedford strike situation.

The country is still being flooded with literature that totally misrepresents manufacturing, wage, and living con-

HALTON JACQUARDS



...TRIED
TESTED
APPROVED
by LEADING
TEXTILE
MANUFACTURERS

We do harness building of every description.

We are prepared to furnish at short notice comber-boards, lingoes, mails, etc., Ingrain and Brussel parts.

We do replacing and repairing of Jacquard machines of other makes as well as our own.

Immediate and expert attention our guarantee.

THOMAS HALTON'S SONS

Mascher St. below Oxford

Philadelphia

Southern Representative
FRED H. WHITE
304-8 Independence Bldg.,
Charlotte, N. C.

Selling Agent
H. A. FORBES
P. O. Box 1663, Paterson, N. J.
Telephone Lambert 8592-W

"USE A HALTON JACQUARD AND YOU USE THE BEST"

ditions in New Bedford. During the week the attempt was made to resume work, press dispatches carried statements saying that New Bedford average mill wages ranged from $12 to $15 per week before the strike began. Francis O. MacDevitt, treasurer of the Paige Mill, in protesting against the lack of protection afforded by police and the public against the thousands of strikers who gathered at the mill he represents and smashed windows indiscriminately, said that in the three months preceding the posting of reduction notices at the Paige plant the average wage paid was $21 per week and this included wages paid to many girls who were employed but six hours daily.

The demand for fine and fancy cottons since the strike began fell to unusually low proportions. Although more than 100,000,000 yards of goods have been taken out of the markets because of the curtailment of output in the fine goods mills of New Bedford and centers outside of that city, the demand for cloths and yarns has not been large enough to supply work for outside mills to the extent of more than 75 per cent of their capacity.

There has been business offered on plain rayons, rayon decorated shirtings, some shirting and curtain materials at prices no better than those that prevailed before the strike began and in some instances on lower price levels. Some of this extraordinary situation is explained by the slow trade in finished goods due to the cold and wet weather of April, May and June. But a more accurate explanation is offered by saying that the over-production of merchandise had become much greater than either manufacturers or merchants realized. By removing the pressure of gray cloths on the market and by relieving many converters from their commitments for new goods to be put into process the financial condition of the converting trades were greatly relieved.

Within the past week or two the demand for goods for future processing has been improving a little but until New Bedford mills are able to give definite assurances of regular deliveries the buyers are disposed to hold off making commitments of a definite character. Where they have been using a definite quality of gray cloth year in and year out they hesitate to place business with other mills whose goods are not likely to serve their purposes until they have been thoroughly tried in the finishing plants.

Business fell off very rapidly in the past month among the finishers in consequence of the New Bedford strike and of the unwillingness of buyers to put further goods into work. Orders for printing reported in hand at the end of June were a third less than those reported a few weeks previously. The average capacity of finishing plants in operation fell below 50 per cent. An improvement is now under way and it is believed that the low point in finishing operations has been passed for the year.

The general situation in the mills outside of New Bedford and Fall River in the New England district has been very quiet. The mills in Rhode Island that had been working on a 48-hour basis weekly have been returning steadily to the 54-hour basis of operation, one of the late instances of a return to the full schedules being that of the Manville-Jenckes Co. with mills at Pawtucket and Woonsocket, R. I. The Legislature in Rhode Island declined to pass a 48-hour bill, but under the stress of war-time and after-war time working conditions several manufacturers adopted the short-hour system for the sake of peace with their workers.

The latter have become convinced that if they are to find regular employment in New England and are to prevent a further removal of machinery to states where longer hours and different working conditions prevail they must concede the right of manufacturers to operate their plants to the extent that existing laws permit. This change in sentiment was illustrated in the case of the Androscoggin Mills of Lewiston, Maine, where some of the large stockholders voted at a meeting to liquidate the concern because of the inability to operate it at a profit.

Groups of citizens in Lewiston, Maine, and minority stockholders who are convinced that the plant can be operated profitably in that city, induced the Central Maine Power Co. to buy out the interests of the stockholders who had voted to liquidate and the result was that the purchase was made and the vote to liquidate was rescinded. It is now proposed to put new economies in the manner of working the plant into effect and to reduce the cost and change the product so that the operations of the plant may be assured for an indefinite period.

Cooperation to secure this result has been assured from the citizens of Lewiston, the operatives, and the new purchasers of the property. Any further efforts made in the state of Maine to impose further legislative restrictions on mill properties are to be discouraged.

Beyond completing the consolidation of three large banks in Fall River which are carrying the indebtedness of mills there that are partially idle, nothing has yet been done in a positive way to assure the consolidation and reorganization of many of the Fall River properties. Committees of bankers and manufacturers, however, are known to be at work studying various plans that have been suggested for a consolidation of the properties to effect manufacturing and merchandising economies which it is believed can be accomplished.

Throughout the New England field there is a constantly growing belief that more of the New England products will have to be sold in the finished state and distributed through different wholesale centers of trade to insure the steady operation of the plants. The combinations that are talked of include combination of finishing plant, mill plants, and sales agencies. The latest organization to adopt new merchandising methods in conjunction with improved manufacturing is the B. B. & R. Knight interests in Rhode Island acting through the sales agency of Converse & Co. of New York. A great many Fruit of the Loom products in bleached, dyed, and printed forms are being sold under the well known trade mark and guaranteed as to every detail of production and finishing by the parent company.

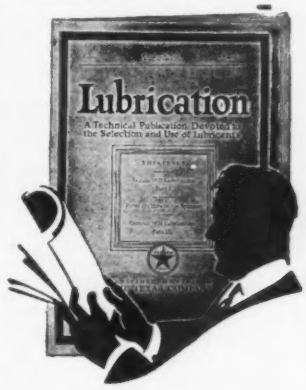
The Naumkeag Co. gave notice in the past month of its intention to supply colored sheets and white sheets with colored borders under the Pequot trade mark through regular trade channels. There has been no improvement in the demand for wide sheetings, sheets and pillow cases that warrants mills in running in full. The large plants in New England engaged on that class of work have been curtailing no less than 25 per cent of their output and have succeeded in reducing their stocks to workable proportions. The mills as a whole are favoring the plan now suggested among cotton manufacturers everywhere to reduce their output three weeks during the Summer and early Fall. This applies not only in New England, but likewise in the South, where, according to reports reaching this territory, the manufacturers are restricting production on many lines, particularly those of the staple varieties.

The Fundamentals of Successful Lubrication

First of All

The *bearings* must be "right"
They must be "right" in

Design,
Construction,
Type of Metal,
Manner of casting and pouring,
The design and construction of oil grooves, and
The direction and distribution of bearing pressure.



MORE ABOUT BEARING LUBRICATION

The June, 1928, issue of our magazine "Lubrication," is devoted entirely to the important subject of Bearing Lubrication. We shall gladly send you a copy, free; and, if you wish, we will send Lubrication to you regularly each month.

Write to the address below.

Then, and only then, can the behavior of lubricants be fairly judged.

We offer you our services—first in making bearings right, second in keeping them right.

We can assist you in scientifically determining the right amount of lubricant—and the right kind for any condition of operation.

And what is worth remembering, be it light, medium or heavy oil, or even grease, we have the right Lubricant—because we can supply a time-tested Texaco Lubrication for every purpose.

Your inquiries are cordially invited.

THE TEXAS COMPANY

Texaco Petroleum Products

Dept. C8, 17 Battery Place, New York City

OFFICES IN PRINCIPAL CITIES

Cotton Comment.

BY H. AND B. BEER.

New Orleans, July 14th, 1928.

As was the case in the first half of June, the weather during the last half of the month was generally unfavorable for the growing crop. The unfavorable weather extended into early July, when peak prices for thus far this season were recorded, showing an advance of about $11 per bale since our last review. Meanwhile, or since early July, the weather was more favorable in the western and central belts, except that moisture is needed in Texas, especially in the western portion. To the east of the Mississippi, particularly in the South Atlantic states, the weather remains too wet. The more favorable weather in the Southwest and central belt of late, smaller domestic consumption for June, and the unexpected large increase in this year's acreage, as reported recently by the government, caused values to decline about $6 per bale since early July, nevertheless prices are about $5 per bale higher than one month ago.

TOTAL AVERAGE RAINFALL IN TEXAS.

Inches— Season—	1927-28	1926-27	1925-26	Normal
For June	3.91	4.66	3.15	3.27
October to June inclusive	20.20	24.95	27.56	23.00

Returns to the government indicate an acreage in cultivation July 1st of 46,695,000 acres against 41,905,000 on corresponding date last year, an increase over last year's acreage of 11.4 per cent, whereas private returns indicated an average increase of about 5.5 per cent.

Compared with last year the increase by states follows: Virginia, 30 per cent; North Carolina, 7 per cent; South Carolina, 5 per cent; Georgia, 13 per cent; Florida, 49 per cent; Missouri, 28 per cent; Tennessee, 15 per cent; Alabama, 8 per cent; Mississippi, 11 per cent; Louisiana, 19 per cent; Texas, 9 per cent; Oklahoma, 17 per cent; Arkansas, 15 per cent; New Mexico, 14 per cent; Arizona, 43 per cent; California, 71.5 per cent; others, 26 per cent.

The government reported the stand of cotton, compared with perfect (100) on July 1st, as 79.8 this year; 84.8 last year; 81.6 year before last; 83.8 in 1925 and 80.0 in 1924. The present privately reported low condition of the crop probably reflects reports of poor stands.

Washington's summary for week ending July 10th: "Temperatures averaged somewhat above normal and rain was generally light to moderate except for heavy to excessive rains in parts of the East."

Meanwhile rains continued, moderate to heavy in the South Atlantic states, and there was considerable moisture in the northern portion of the central belt, in Oklahoma and the Texas panhandle, elsewhere in Texas only widely scattered light showers occurred. A general rain would be of benefit in Texas except in northeast portion, and a period of dry weather would be beneficial in the eastern belt.

The first private crop condition and yield forecast report issued since the government released its acreage figures last Monday, was launched by the Fossick Bureau which averages the condition of the crop at 68.8, indicating a production, based on the government's acreage, of only 13,512,000 bales.

The first condition and crop forecast report by the government will not be released until August 8th, when it is expected that official comment will be made on the weevil situation in the fields as of August 1st.

So far the government has reported on boll weevil emergence from cages only, which was light except in a few scattered localities of the belt. Private advices from numerous sections of the interior, however, are to effect that weevil are increasing, with infestation heavy in localities.

In Oklahoma, the Mississippi Valley States and the South Atlantic region, the wet weather during June and the first half of July was favorable for propagation and spread of the weevil. So far there was nothing except as to reports of light emergence, weevils increasing, but no damage as yet, probably owing to lateness of the crop in fruiting. From now on, however, more is likely to be heard of the pest, perhaps as to actual damage being done since the weevil will have something to feed on.

CENSUS REPORT.

United States— Bales—	This season	Last season
June consumption, lint	510,565	659,841
Consumption 11 months, lint	6,393,946	6,619,820
Mill stocks June 30th	1,158,531	1,594,475
Stocks in public storage June 30th	1,645,971	2,181,509
Stocks in mills & pub. stg. June 30	2,804,502	3,775,984
Active spindles during June	28,624,488	32,756,862

WORLD'S VISIBLE SUPPLY JULY 13TH.

Bales—	This year	Last year
American	2,513,540	3,596,004
Of other kinds	1,991,000	1,640,000
Of all kinds	4,504,540	5,236,004

The Garside Bureau estimates world consumption of American cotton this season, exclusive of linters, at around 15,700,000 bales against 15,789,000 last season, which would leave a carry-over, they say, of about 4,923,000 bales versus their figures of 7,758,000 last year, linters not included, and their idea is that the world would probably consume 14,500,000 to 15,000,000 bales, exclusive of linters, next season if crop is adequate and the price is reasonable. In view of the present crop outlook, these estimates as to the carry-over and world requirements for next season appear bullish. Last year Secretary Hester made the world's carry-over of lint cotton, linters not included, 6,952,000 bales versus 5,378,000 year before last, and as it is likely to be much smaller this year, it is evident that a moderately large crop is necessary for next season's needs.

Test on Cleaning Low-Grade Cotton.

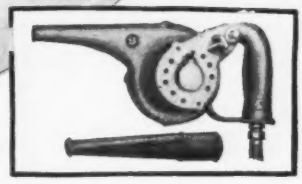
An interesting paper giving information based on the results of tests on cleaning low-grade cotton, from the Texas crop of 1926, has been issued by the United States Department of Agriculture, in the form of a preliminary report on the subject, compiled in cooperation with Clemson Agricultural College, Clemson College, S. C., and written by H. H. Willis, cotton technologist, division of cotton marketing, Bureau of Agricultural Economics, of the Department. Cotton harvested by the sledding method was used, as well as cotton gathered by picking and snapping methods, and the test was conducted to determine the effect of the different methods upon waste, running qualities, strength, uniformity, and appearance. The figures given are complete and present some interesting information as to the comparison between low-grade cotton gathered by the three methods mentioned.

Cox & Silver, Inc.

Cox & Silver, Inc., advertising counselors, Birmingham, Ala., have been incorporated by Oliver Cox and Ralph Silver, taking over the business of the Cox Advertising Agency. Mr. Cox is president and Mr. Silver secretary-treasurer. The firm will act as general advertising and sales promotion counsellors.

The US HAND BLOWER

It's death on DUST!



DUST, lint and other free dirt have no alternative but to find other lodging when you get after them with this handy little tornado. Blows 267 feet of air per second! Just as sturdy as it is furious, too. Powerful universal motor. Double silk enameled wire used in armature. SKF Ball Bearings. Quick make, quick break, two-pole switch in handle. Aluminum body. Rubber insulating tip. Twelve feet flexible rubber covered cable. Cable protector at handle. Armored attachment plug, etc. List price, only $38

Ask Your Jobber or Write Us

The UNITED STATES ELECTRICAL TOOL COMPANY
2474 W. SIXTH ST. CINCINNATI, U.S.A.

THE STANDARD OF QUALITY SINCE 1897

Oldest Builders of Electric Drills and Grinders in the World.

Export Sales Representatives
Westinghouse Electric International Co.
150 Broadway, New York City

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

JOHN S. BACHMAN, who, according to report, has become agent of the Morrilton Cotton Mills, at Morrilton, Ark., succeeding E. T. Gurry. Until recently, Mr. Bachman had been superintendent of the Anchor Duck Mills, Rome, Ga., for many years.

H. W. BROOKS has been made district sales and factory manager of the Atlanta Plant of the Murray Company. Mr. Brooks, formerly of Memphis, Tenn., comes to the Murray Company with twenty-five years of experience in the cotton ginning machinery business.

HARRY D. LORD has been placed in charge of the new office of Joseph Sykes Brothers (American), Inc. The main office of this new corporation will be 137 Federal Street, Boston, Mass.

J. D. LONER, formerly superintendent of the Dwight Mfg. Company, Alabama City, Ala., has been selected as the superintendent of the two new cotton mills to be erected at Guntersville and Albertville, Ala.

G. L. AUSTIN, overseer of spinning at Alice Mills, Easley, S. C., has been appointed superintendent to succeed A. B. Adkins, who has resigned to become superintendent of the F. W. Poe Mfg. Co., Greenville, S. C.

J. I. ALFORD, formerly night superintendent, has become assistant superintendent on the day shift at the Imperial Cotton Mills, Eatonton, Ga.

W. R. BARNETTE, overseer of carding, Borden Mills, Inc., Kingsport, Tenn., has become night superintendent at Winnsboro Mills, Winnsboro, S. C.

W. L. CLAYTON, formerly assistant superintendent and chief engineer of the Roundtree Cotton Mills at Magnolia, Miss., has been appointed superintendent to succeed C. K. Taylor.

J. M. SPEARMAN, overseer of carding, Alice Mills, Easley, S. C., has been appointed superintendent of the Ariail Mill which is now under construction, near Easley.

J. T. MEADOR, a recent graduate of the University of Alabama, is representing the Morse Chain Company in Georgia and Alabama.

KENNETH M. BAILEY has been appointed technical sales representative of Curtin-Howe Corporation, New York, with offices at 515 New Orleans Bank Building, New Orleans, La.

WILLIAM A. STEWART, for several years southern representative of the Providence Drysalters Co., and more recently with Jacques Wolf & Company, is now representing the Atlanta Textile Supply Company, of Atlanta, Ga., in Georgia and Alabama, south of Atlanta and Birmingham.

CAPTAIN B. M. MITCHELL has been elected an honorary and life member of the American Society of Mechanical Engineers. Mr. Mitchell is president of the Conveying Weigher Company of New York, and consulting engineer for The Manhattan Rubber Mfg. Co.

HENRY WEISENBACH has been appointed vice-president and sales manager of the Robison Rayon Co., Inc. Mr. Weisenbach was formerly manager of the commission yarn department of the Duplan Silk Corp. He will be in charge of the new New York offices located at 171 Madison Ave.

W. O. HOLLIDAY, overseer of spinning at Monaghan Mill, Greenville, S. C., has been transferred to the Tucapau Mill, Tucapau, S. C.

H. D. CARRAWAY, formerly with Martha Cotton Mills, Thomaston, Ga., is now second hand in spinning at Thomaston Cotton Mill No. 3.

J. A. BELL has been elected president of the Bell Hosiery Mills, Suffolk, Va.

C. E. Pearce, who has been agent and superintendent of the Tallapoosa Mills, Tallapoosa, Ga., has been elected secretary of the company.

A. L. HANEY, formerly of Mooresville, N. C., is now overseer of weaving at the Jennings Cotton Mills, Lumberton, N. C.

C. W. KALE, superintendent of the Stowe Spinning Company, Belmont, N. C., has become vice-president of the Belmont Hosiery Mills.

E. C. STONE, president of the Louise Knitting Mills, Durham, N. C., has been elected vice-president of the Yarbrough Mills, Durham, N. C.

HENRY E. LITTLEJOHN, formerly superintendent of the Victor-Monaghan Company, Greenville, S. C., has become assistant manager of the southern plant of the Steel Heddle Manufacturing Company, at Greenville, S. C.

DAVID NEWHALL has been appointed manager of the Philadelphia branch of the Manhattan Rubber Manufacturing Company, succeeding John S. Latta, who has resigned.

E. G. FIELD has been made manager of a special department for cost accounting and industrial engineering of the William H. James and Company, certified public accountants, Atlanta and Charlotte. Mr. Field received his early practical training in large power plant operation, and then in the manufacture of machinery. He received his early industrial training under the late H. L. Gantt of New York. Mr. Field installed Gantt methods of wage payment, production control and cost accounting in many large northern plants. Following the death of Mr. Gantt, Mr. Field continued in industrial work and made special investigations, arranged time studies, and set standards for several manufacturers in various lines. Considerable work has already been done by Mr. Field in this section, particularly in the textile mills, and he is permanently locating in Atlanta to continue his specialized services and installations for other southern plants. He is an associate member of the American Society of Mechanical Engineers.

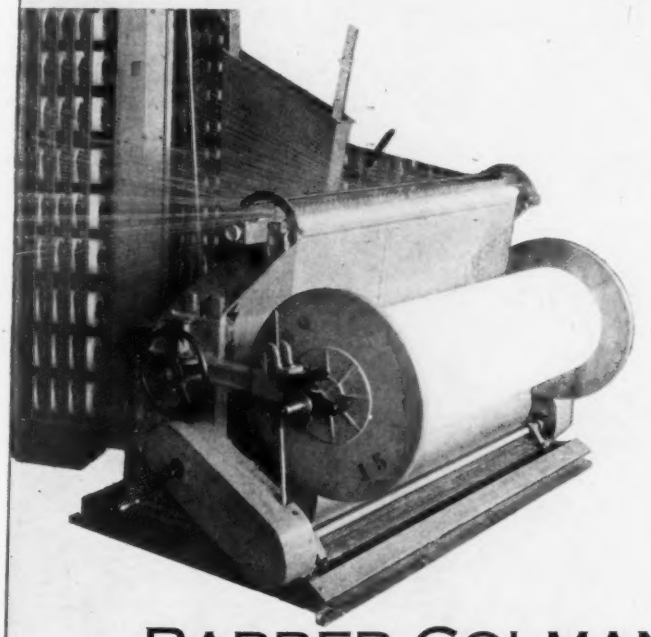
REPRESENTATIVE MILLS

~each with 5 or more

Automatic Spoolers and a proportionate number of High Speed Warpers in daily operation.

Many other mills are using Barber-Colman Spooling and Warping equipment with satisfaction and profit.

Bemis Bros. Bag Co.
Cabarrus Cotton Mills
Cannon Mfg. Co.
Crown Cotton Mills
Dallas Mfg. Co.
Dan River Cotton Mills
John Farnum Co.
Firestone Cotton Mills
Fisk Rubber Co.
Franklin Cotton Mills
Hannah-Pickett Mills
Home Cotton Mills
John P. King Mfg. Co.
Naumkeag Steam Cotton Co.
Pacific Mills
Standard-Coosa-Thatcher Co.
Trion Company

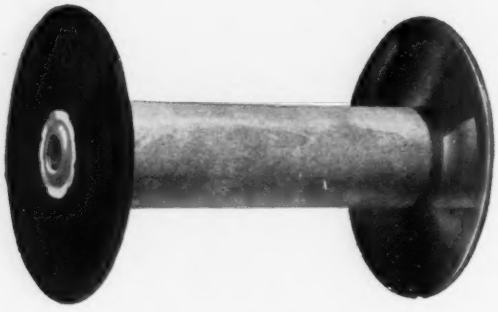


BARBER-COLMAN COMPANY

GENERAL OFFICES AND PLANT
ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.

Stream-line Spools



Light Weight -- Extra Strength -- Long Service

Surplus weight and bulk are giving way to compact strength in every field. In spools this has been achieved by U S Vulcanized Fibre Head Spools.

Spool troubles, replacements, repairs, and accidents to operatives are eliminated.

U S Vulcanized Fibre Head Spools have ***"the priceless ingredient"*** of U S reputation for quality, backed by the U S guarantee that every spool is well made and finished, ***will run true,*** and the heads will not warp, crack, or splinter in regular mill usage.

Faster, better, and more economical spooling inevitably results where they are used.

Place a trial order and see for yourself.

Write, wire, or 'phone.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

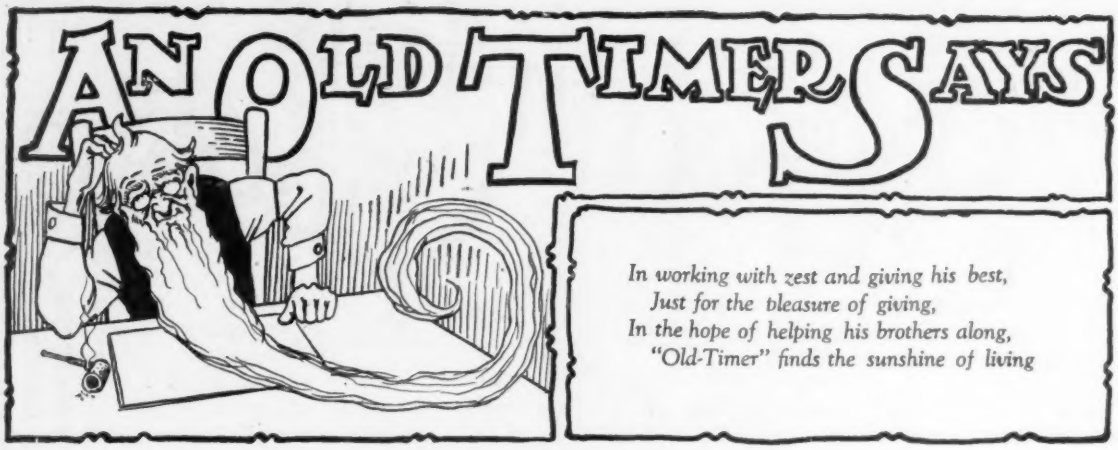
For Silk and Rayon

Fibre Head Winder Spools
Fibre Head Shipping Spools
5 B Spinners.

Heads nailed to barrels or fastened with Bevelled Dogwood Bushings.

Branch Offices:
Greenville, S. C.
High Point, N. C.
Philadelphia, Pa.
Atlanta, Ga.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

Answers to "Old Timer's" Questions.

IN HIS article in the June number, "Old-Timer" asked a good many questions about mill work, and requested his readers to answer any or all of them, and a large number of interesting responses came in.

This month, while "Old-Timer" is vacationing, tin lizzie riding, fishing and the other diversions he enjoys when he gets away from the mill, we are "pinch-hitting" for him by publishing some of the replies below. They are all interesting, and, covering several different features of mill work, contain some good suggestions.

"Old-Timer's" report of his visit to Jim's mill will be resumed in the September issue. It's always good reading when these two old cronies get together, and next month they will bring up some especially pertinent points. — The Editor.

Operating a Spinning Room.

EDITOR COTTON:

I have thought many times of writing to you, but it finally took the letter of "Old Timer" in the June number to move me to do this, and I am very glad to submit the following thoughts:

Every time I read "Old Timer" I go to my job the next morning and try to find a new way of doing things. It always gives me new ideas to read after him, especially when he is raising so much Cain with "Jim." I have a section man who got his first copy of COTTON this month, and if he keeps on reading and studying it, he will make it hot for "Old Timer" one of these days.

I would like to discuss some things with reference to improving conditions in the operation of a spinning room. Taking up the plumbing of spindles, I think they should be plumbed every year, bottom and top, and the overseer should look them over. I did this seventeen years before I "took up overseeing".

To keep the weight levers set, I have the section man look them over every week and set any that are off. If the lever should drop down it will take off the weight if it touches the board and causes the roll to wear the roller finger out.

I change my travelers always when I change numbers, and never change them except then, as I am on fine hard twist, and they naturally change themselves. Our carder makes 9.35-hank roving, and I have him put only 4.60 turns of twist in and I never have any trouble with hard ends. The only black places we have in our roving come where the jack frame tender puts up an end, and they never go through my spinning, as I keep the rollers set close enough to pull hard enough to break the traveler off. We are running 1 3/16 inch cotton, making 50s warp with 27 turns per inch, and 52s filling with 39 turns per inch.

O. T. (N. C.)

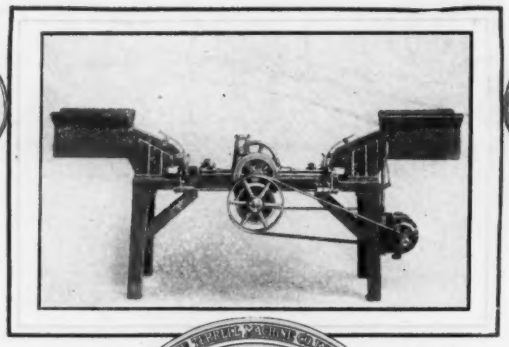
Black Oil in the Work.

EDITOR COTTON:

In the June number, "Old Timer" asked us readers to submit letters for the discussion department on some of the questions he asked in that number, and just to please him, I am going to answer his question with reference to black roving, outlining some of the things we do to prevent it.

First, we find the card hand putting up ends with black hands, and then the drawing frame hands and operatives on the slubbers, speeders and fine frames in the card room, while on going through the spinning room we find the same condition. Going back to the pickers we find the operative careless in his cleaning, dropping small specks of black oil into the cotton; then these black spots are caused from the carelessness of card grinders and section men handling the stock with oily hands.

A lot of the black comes from careless or excessive oiling, which runs out from the roller in small quantities. In the spinning room are the same conditions of hard black lumps, caused by the spinners or section men putting up ends with dirty or oily hands. These black lumps are a source of annoyance to the cloth room inspector and add to the cost of finishing the product. Other defects of this



UTSMAN

A Clean Mill Is An Asset!

You can scarcely expect operators to work at high efficiency unless looms and mill floor are kept clean and uncluttered with yarn ends.

This is one of the important reasons why progressive mills select Utsman Feeler Bobbin Cleaners to take care of this work. No other method will insure both clean looms and clean mill floors. No other method compares in any degree with the economy and efficiency of the Utsman way.

Utsman Feeler Bobbin Cleaning machines assure a steady flow of perfectly cleaned bobbins . . . 40,000 a day for the single end Utsman, twice that for the double end machine.

We would appreciate an opportunity to show you how Utsman equipment will save its cost in your mill over and over again *every year* throughout the long life of these fool-proof, automatic machines . . . and show you how the Utsman actually costs you *less* than *any other* quill cleaning method.

Write us today about your quill cleaning problems.

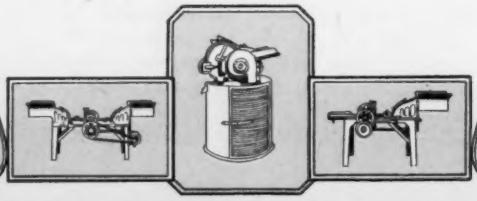
The TERRELL MACHINE CO., Inc.

Mfrs. Termaco, Utsman, Type K, Etc., Machines

Charlotte, N. C.

General Supply Co., Danielson, Conn.

N. Y. and N. E. Representative



kind are known as slasher oil, coming from black cotton waste in the hood of the slasher, or hard black lumps caused from sediment in the size as the result of improperly cleaned size kettles and size boxes. All of the defects from carding and spinning are found in warp and filling.

Then we come to the weave room, where all of the seconds are made. Here dirty, oily places are made by dirty quill cans and filling boxes, weavers and loom fixers drawing in threads with dirty, oily hands. Then too much oil on the loom and battery gets on the filling and warp, and on the floor, so that filling dropping on the floor gets this black oil on it. An excessive amount of hard grease put on the head gears and vibrating whip-roll cam will fall on the floor, and sometimes empty quills fall into this, being returned to the spinning room with this black grease on them, filled up and brought back to the weave room to be woven into cloth with this black grease on them. A lot of dirty cloth is made by loom fixers laying oily parts of looms, belts and wrenches on the cloth, and much black oil gets into the cloth from blowing or cleaning of the loom.

To avoid an excessive amount of this oil from cleaning, looms should be kept clean all of the time, and this oily waste should never be allowed to accumulate. Another cause of black oil comes from the cloth being set on an oily floor. E. F. (S. C.)

Plumbing Spindles.

EDITOR COTTON:

I notice in the June issue that "Old-Timer" suggests that the readers tell you how they do different things in the mill. As I am an old spindle plumber, I will outline my methods of doing this work.

Spindles should be plumbed once a year; and where a mill is operating at night it would be advisable to have it done more often. I use the following method most frequently and find it best. If there is any leveling to be done it should be finished before the plumbing is started. All ring rails should be leveled. This is important; I have seen rails as much as a half-inch higher on one side of the frame than on the other. The traverse should be run up until the ring rails are within a half-inch of the top of the spindles—then I measure from the base rail to the top of the ring and level all rails to this.

After the ring rails are leveled, I run the traverse to the bottom, that is, as low as the ring set will permit. The ring sets—or plugs, as some call them—should be made to go as far down on the bobbin as possible. All spindles should be got in at the bottom first, and those which can't be, knocked in by use of the hammer and spindle wrench. The traverse should then be run to the top of the spindles, and should be run up until the spindles are level with the top of the rings. When plumbed in this way they are *plumbed*. Some men lack an inch or so of going low enough, and that much high enough. I have done it myself because it helped me to get by. When the traverse is run to the top, all spindles that are off should be plumbed in by the use of paper of the proper thickness. I have found old time sheets to be the best for this purpose.

After the spindles are plumbed in at the top, the traverse should be run back to the bottom and the spindles gone over as before. This should be done until the spindles are all in the proper place; that is, plumbed at the bottom and top.

The method used to see that the work is done properly is important, for we have too many so-called spindle plumbers and overhaulers getting by, and the overseers are mostly to blame. When the overseers begin to see that the work is done, then we will not have so many learners on the job. An overseer should have a ring set made for his own use, and when the plumber finishes, he should look over the spindles, bottom and top, and mark with chalk all he finds off. Then he should have the plumber go back and put them in, not allowing him to rub out the marks. Then the overseer should check them again, and if they are properly set, he can rub out the marks.

If the overseer will see to it that the spindles are plumbed, the superintendents and managers will stop saying that it doesn't do any good to plumb spindles. After some of these so-called plumbers get through and get their money, the superintendent comes through and asks the overseer how his work is running, and he says, "Not much better." No wonder they say it doesn't do any good.

Overseers should also look over their guides after the spindle plumbers, to see that they are properly set. Sometimes overhaulers will go over them hurriedly and leave them off. D. K. (N. C.)

EDITOR COTTON:

Will you please allow me space in the discussion department to answer one of the questions "Old Timer" presented in his article in the June number of COTTON? I would like to give my rules in answer to his inquiry as to how spindles should be plumbed.

My method is as follows: First have the frame leveled lengthwise and also crosswise, and then have the ring rails leveled in the same way. Then run the ring rail to the top and plumb the spindles that are out of set. A plumber should look over his work before having the overseer inspect it, so that he may find all spindles that are out of set which might have been overlooked.

I presume that all overseers look over a job of overhauling before starting the frames up. That is the only way I know of to be certain that the spindles are plumbed correctly—and what I mean by being plumbed is having all of the spindles set to the center of the ring at the top and bottom of the spindle. R. P. B. (S. C.)

Reducing Soft Slasher Waste.

EDITOR COTTON:

To please "Old Timer," and in response to his article in the June number, I take pleasure in offering the following suggestions as to how to reduce slasher waste to a minimum.

The warper should not be run until the warp is started, and all ends should be in the warp. If an end breaks the warper should not be allowed to run. When the beams are taken off of the warper they should be handled with care so as not to be snagged or to cause the ends to become rolled together to such an extent that several yards have to be pulled off in the slasher.

In putting the beams in the slasher, the beams with the most space between the heads should be put in first, with the shortest beams at the rear. If the short beam is put at the front of the set it will roll the outside ends on the wide beam as they pass over it, and when ends are thus rolled together they will break at the lease rods or split

(*Continued on page* 1063.)

Examine Your Time-Honored Practices

EVERY business enterprise that exists long enough acquires its various traditions. Whether or not they are worthy depends on the management.

Good management looks into the traditions of its organization, especially at budget making time, and seeks to weed out those that are undesirable and thereby gain something in resources for perpetuating and strengthening those that are worth while.

The preparation and use of a well-ordered budget dictate that expenditures must be governed, not by precedent, but by necessity as indicated and explained by the aims and month to month operations of the business.

Effective *budget control* is based on Modern Accountancy and is a means through which Modern Accountancy serves the creative talents of management with the stimulus and dependable counsel of *timely* and *exact* knowledge.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

NEW YORK	WASHINGTON	DETROIT	CLEVELAND	CINCINNATI	ST. LOUIS	CHICAGO	DALLAS
PHILADELPHIA	BUFFALO	GRAND RAPIDS	AKRON	DAYTON	KANSAS CITY	MILWAUKEE	FORT WORTH
BOSTON	ROCHESTER	KALAMAZOO	CANTON	LOUISVILLE	OMAHA	MINNEAPOLIS	HOUSTON
PROVIDENCE	PITTSBURGH	ATLANTA	COLUMBUS	HUNTINGTON	MEMPHIS	ST. PAUL	SAN ANTONIO
BALTIMORE	WHEELING	MIAMI	YOUNGSTOWN	NEW ORLEANS	DAVENPORT	INDIANAPOLIS	WACO
RICHMOND	ERIE	TAMPA	TOLEDO	JACKSON	DENVER	FORT WAYNE	SAN FRANCISCO
WINSTON-SALEM							LOS ANGELES

ALL KINDS OF
RUBBER COVERED ROLLS
Stowe & Woodward Company
Newton Upper Falls, Mass., U. S. A.

STODGHILL & COMPANY
530-532-534 Marietta St. Atlanta, Ga.

"The Size That Satisfies"

Sizing Compound "V" — TALLOW, GLYCERINE, GUMS, DEXTRINE, PRESERVATIVE, WATER

Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

Sizing gums and weighting gums.

* * *

Our prices are right for the quality of products.

Emulso Tallow — TALLOW, WATER

The perfectly emulsified product. Contains no Gums, Acids or Alkali.

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

What Makes Cloth Curve and Bow?

EDITOR COTTON:

Here is a question I would like to have you get some information on for me. What will make a piece of cloth weave longer on one side than on the other? A great deal of our goods are indigo stripe. The indigo is dyed long chain, then beamed. The white beams are made on the warpers. Both the white beams and the blue beams are put on the slasher together to make various patterns.

When the cloth is run through the cloth room it is quite noticeable that one edge runs tight and the other edge slack. Some of the cutters we sell have complained that when they lay the cloth on the cutting table it tends to take the form of a large circle, due to one side being longer than the other.

I would like to hear from someone who has had trouble like this as to what causes it. L. D. (GA.)

"Textile Salesmen I Have Met—"

EDITOR COTTON:

In his article on the cost of purchasing in the April number of COTTON, "Contributor No. 1011" touches a very timely subject. The price spread between producer and consumer is something that everybody knows something about. To those interested I commend the very timely and interesting article on page 589 of the April issue.

I have done a little meditating on my own hook about the salesmen who wait in my office for me to show up. As your contributor says, the mill in the end pays them for the time they waste there, still it is not my fault if they stay there half a day if I do not know they are there or if I am too busy to see them. As a matter of fact, I frequently lay down important matters which I must take up again later at some inconvenience to stop and go to see some salesman whom I did not ask to call and from whom I know that I am not going to buy anything.

It has always been somewhat of a problem to me as how to treat salesmen. There are mills who say frankly that they do not want any salesmen to call, and will not talk to them. I somehow admire their spunk and envy them their quiet, undisturbed days, but myself, I can't do it. If I do not see a drummer I feel that I might have missed something. If I do see him and do not want to buy, I do not know whether to be hard-boiled and say "Get the H— out of here and never come back," or whether to be nice to him. If I am hard-boiled I might hurt his feelings which I do not want to do, and if I am nice to him, especially if I give him a small order to help him out, I know that I will have him on my hands every so often for the rest of my life. He never will stop coming back and every time he comes I will be put to just so much trouble, will have to walk just so far to see him and will have to go all over again all the arguments as to why I do not want his goods even though he has just assured me as he has done many times before that they are the best in the world.

Salesmen, in my opinion, are divided into three general classes. The first and best of these is the man who represents a well established house whose products the mill is using. These are supply or machinery men and are as much service men as they are drummers, and in addition to a price list they possess a fund of experience and knowledge which they are always ready to use for the benefit of the mill. I am always glad to have such men call and it gives me pleasure to acknowledge gratefully at this time the inestimable service they have at all times rendered both to the mills with which I have been connected, and also to me personally. Long may they wave.

The second type is the man who represents a house which has sold you something in times past and who now wants to sell you more. You may have been dissatisfied with what you bought. You may have bought all of his product that you have need for. He fights your dissatisfaction with the statement that you are mistaken or prejudiced. He argues with you that you cannot possibly be using all that you need, that there is no saturation point for your mill and cites numerous plants as examples. It may be a machine attachment which he wants you to try on various machines. It may be a proprietary compound which will work wonders for almost any purpose, if you will but believe him, but in any case the results are the same. You receive frequent visits from and waste a lot of time talking to someone who is not going to sell you anything. Both of you know it, but both of you have to go through a certain set of motions every so often—he very likely because his boss pretends that he can't understand why you can't be sold, and you because you are too considerate or too cowardly to throw him out and tell him not to come back.

The third, last and lowest form of salesmen is the one who represents or misrepresents a house you have never heard of, whose product if it should happen to be as claimed would at best be of doubtful benefit and the actual value of which has no connection at all with the price asked. This type represents the highest-pressured, hardest-shelled and most desperate form of salesmanship I have ever encountered. Probably the poor devils are desperate. I have thought so in a number of cases. They are for the most part young men just starting out who must perforce be connected with somebody as a beginning, or else older has-beens who have somehow failed to maintain connec-

Pays for Itself

out of increased production . . .

The time you could save by eliminating all trips to a concession stand will perhaps surprise you. Figure this profit for a year.

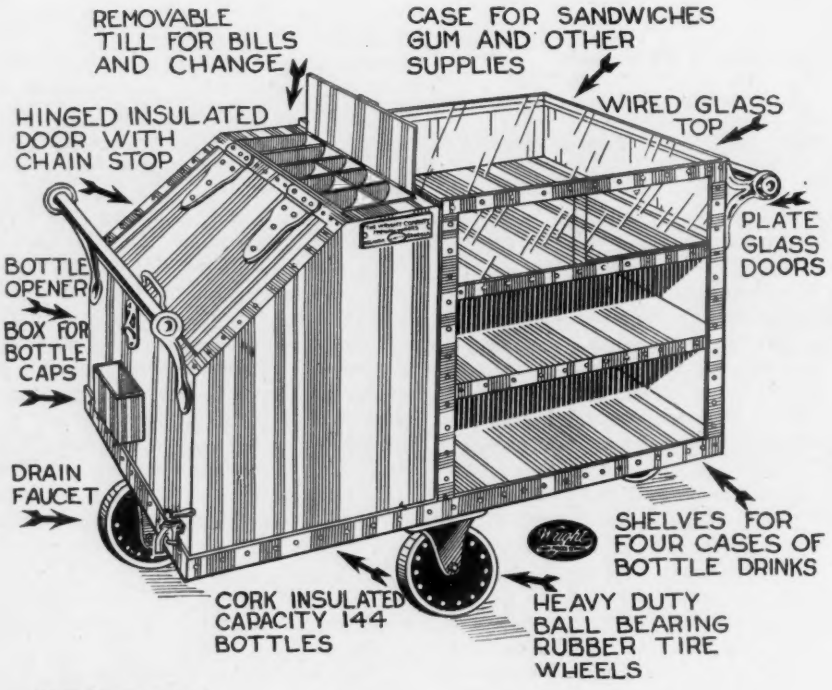
Then compare the result with the price of Wright's Cold Drink and Food Cart. This comparison alone will prove Wright's practicability, but consider that—

It pleases every employee, because it gives them all equal liberties as to leaving their respective posts.

Highly indorsed by leading textile mills. Study the illustration carefully, then write for descriptive bulletin.

Increase production with a WRIGHT

The WRIGHT CO., Inc., 479-81 Whitehall St., Atlanta, Ga.


REMOVABLE TILL FOR BILLS AND CHANGE
CASE FOR SANDWICHES GUM AND OTHER SUPPLIES
WIRED GLASS TOP
HINGED INSULATED DOOR WITH CHAIN STOP
PLATE GLASS DOORS
BOTTLE OPENER
BOX FOR BOTTLE CAPS
DRAIN FAUCET
SHELVES FOR FOUR CASES OF BOTTLE DRINKS
CORK INSULATED CAPACITY 144 BOTTLES
HEAVY DUTY BALL BEARING RUBBER TIRE WHEELS

WRIGHT'S

COLD DRINK and FOOD CART

tions with established houses. They march in on you with a brazen front, make preposterous statements which they have been taught to repeat parrot-like about products of which they know absolutely nothing, and then when you question their statements or refuse to buy, take refuge in the attitude that you are lacking in sufficient intelligence to appreciate the value of their offer.

These gentry, when not mildly pathetic in their eagerness to get a commission, are so hard-boiled that they are positively immune to ordinary courtesy and consideration. I do not know of any verbal weapons that will down them. I imagine that a baseball bat would be effective in some cases, but have never tried it for obvious reasons. I know that I hate and at the same time pity them.

The consequence of all this is what is known as sales resistance. In time it becomes automatic. When I see a sample case come galloping in accompanied by a welcoming smile and an outstretched hand, I immediately begin to draw into myself. The smile which may be one of real friendliness assumes in spite of all I can do, the aspect of a grin of fiendish triumph, while the hand, though doubtless extended in hearty good fellowship, seems merely a grasping claw reached out to grab something off me. I am convinced ahead of time that I do not want anything from this salesman. Sometimes I change my mind. Sometimes I only get more firmly set against him and whatever he tries to sell. But at best I have suffered. I have lost something, not only time—and all the time I spend talking to salesmen is not lost by any means—but I have lost something else. Not often, but occasionally it is my temper.

Doctors say that when you get fat you swap a lot of good muscle for a lot of useless fat. I think something like that happens to me in this case. I think that in proportion as I build up in sales resistance I lose in efficiency. Maybe it is not efficiency, but I know I lose something wrestling with a lot of folks that I do not want to buy from. Still, I would not have someone else talk to the salesmen. I want to talk to them myself. Some of them are so extremely worth while!

Buyers who represent groups of mills act as buffers between selling agents and executives and spare them some of the wear and nervous strain incident to buying—or rather refusing to buy. That is where the strain comes in. There are also professional purchasing departments to which independent mills can subscribe with the idea of getting the advantage of cooperative or mass purchasing, but since working for a mill which was tied up with a purchasing agency some four hundred miles away, I have lost my enthusiasm for that particular idea.

In fact the central purchasing department, while it is a good scheme in various ways is open to criticism. For one thing a good buyer is a very rare bird. Unfortunately, too, they are not always practical mill men and have at best a rather foggy idea of what they purchase and why. The main idea of the department of course is to save money so that naturally the purchasing agent is inclined to buy strictly on a price basis which is not always best, or else, because of the volume of business which he commands, he puts bidders into a competitive position which forces their prices below what they should be. I am firmly convinced that I have never gotten any more than I paid for, and I believe that in the end the mill always suffers for trying to buy too cheaply. A properly managed purchasing department, however, can be worth a great deal to the concerns that it serves.

It has always been my custom to make the overseers do a certain amount of their own buying especially when it comes to taking up something new. I want them to be satisfied, and I want them to feel responsible. It also eliminates the possibility of their saying "Well, the old man bought it and I've got to use it." Supplies used in that spirit generally finish up on the junk pile.

In all of the rather complicated process of running a mill, I do not think that there is anything more important than this subject of buying, and the few thoughts I have advanced here only scratch the surface of it. I could write a book about it and probably will some day—if I am not interrupted by salesmen. There are a couple now—patient souls they are—sitting outside my door waiting for me to get through this. They have both looked up my name in their directories and are determined to greet me as a long lost brother. I wish them both luck, but don't think they will have any here. I know that they and their brothers of the grip have cost this mill a lot of money from time to time, but I have an idea that in the long run they have saved it many times more. I do not want them abolished so far as I am concerned. And this I do know. If it were not for them I could not smoke nearly so many good cigars!

CONTRIBUTOR NO. 4039.

An Inexpensive Cooling System.

EDITOR COTTON:

One of the most distressing features of running a mill is to have one of the departments or all of them too hot during the Summer months. It is a great detriment as the operatives cannot do their best work when overcome by oppressive heat and stale air.

If theaters were to maintain conditions of atmosphere that some mills maintain they would not get much patronage. They have studied and succeeded in giving the public comfort, even in the hottest weather. This is done by properly ventilating and cooling the air that comes into the theater. So we may take a lesson from them and at very little expense we can follow their efforts and reap some of their experiences.

I was bothered with my weave shed being oppressively hot and it looked like we just couldn't open any window for fear the work would run badly. Just why does it run badly when we open windows? It is because we let in a lot of dry air that lowers the humidity. So the thought comes in to us to suck air from the outside and humidify it before it enters the room.

We know that when water is evaporated a certain amount of heat is absorbed from the surrounding atmosphere which is called the latent heat of vaporization. Therein lies the secret of the cooling system I will describe in this letter, the idea being to draw air from the outside, pass it through a humidifier which lowers the temperature of this air and then pass it on into the room. We then are putting in clean, cool air that is thoroughly humidified, and will not affect the running of the work but instead will improve the running of it as cool air is more easily humidified and makes the operatives feel more like doing a good day's work.

To get down to details, let us glance at the accompanying sketches. The one shown as Fig. 1 is the type that the writer uses in his mill and is one of the well known disc type of humidifier. We simply connect a 16-inch galvanized iron pipe from the intake of the fan part of the

The engineers who designed this bearing knew the textile man's big problem.

Every textile mill operator knows that cleanliness is absolutely essential to profitable production. A spot of oil and goods are ruined.

Dodge engineers have designed a grease seal that is at once positive and indestructible. No grease can work out of the bearing—no dust can enter.

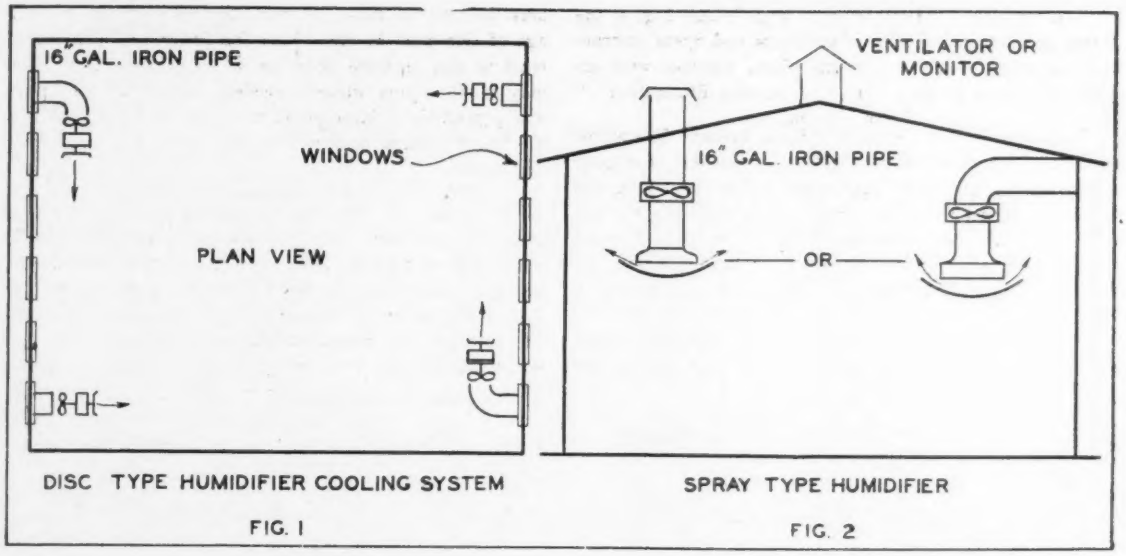
The steel seal employed in the Dodge-Timken bearing cannot wear out consequently your protection against damaged goods is complete.

We will be glad to send you interesting bulletins and full information on request.

Dodge-Timken Bearings are carried in stock by local mill supply and machinery dealers from whom they are immediately available.

DODGE MANUFACTURING CORPORATION
MISHAWAKA, INDIANA

Power Transmission—Material Handling—Special Machinery



DISC TYPE HUMIDIFIER COOLING SYSTEM — FIG. 1

SPRAY TYPE HUMIDIFIER — FIG. 2

humidifier to an outlet made in a window. Four of these ventilating and cooling pipes should be equal to cooling for a weave room of say 250 looms.

We first thought that it would knock the props out of our relative humidity but soon found that it seemed to aid it, because the outside air was more easily humidified than the hot inside air. Also the hot air rises to the ceiling and passes out through the ventilator or monitor, and the cool air settles to the floor, giving fresh air to the operatives and well-humidified air to the warps or spinning as the case may be.

Instead of piping it to a window, if this is inconvenient, one can have a ventilator placed directly over the humidifier of the disc or spray type and have a pipe connect from the ventilator direct to the fan intake of the humidifier, as shown in Fig. 2. However, I think it is best to take the air from the windows, as this air will usually come from the shade and be somewhat cooler than that from the roof of the mill.

This system is very inexpensive and I am able to maintain a humidity of 90 per cent in our weave room when the thermometer is 95 degrees outside and the weave room will be more pleasant—in fact, about the coolest place in the mill.

It is hoped that this plan will be of some use to those mills troubled by excessive heat.

CONTRIBUTOR No. 4040.

How Are Eyes in Harness Figured?

EDITOR COTTON:

I would appreciate seeing, in the "How Other Men Manage" department, some information as to a short method for figuring the number of eyes per inch on different sley harnesses. We have had considerable argument on the number of eyes per inch on harnesses to be used for running 144-sley broadcloth, 5,350 ends, 37 inches wide, using six harnesses.

I hope some of your readers will furnish us with any general rule for doing this figuring, as well as any specific information upon this particular problem.

CONTRIBUTOR No. 4037.

The Preparation of Colored Warps.

EDITOR COTTON:

In your April issue, in the discussion department, you published a suggestion from a reader that you present some discussions with reference to the preparation of colored warps. I agree with him that this subject has received comparatively little attention, and because of this, I will discuss it more or less completely in this article. I will first answer his questions specifically, dealing also with the subject in a general way.

This reader submitted in the April issue two written cloth patterns, Cloth *A* and Cloth *B*, and wanted some discussion as to the preparation of his warps. The patterns were as follows:

Cloth A.

White	10	10 — to balance on left side
Dark Blue	2 2	
Light Blue	10	

90x = 2170 ends.

Total number of ends of each color in warp:

White	910 ends
Blue	360 ends
Light Blue	900 ends
	2170 ends.

Cloth B.

White	20	20 1 1 1 1	1 1 1	20 20
Blue	4	4 1 1 1 6 10 4 4 10 6 1 1 1		4 4
Black	2 2	2 2 2		2 2
Tan	2 2 2	4 4		2 2 2

17x = 2008 ends
58 ends
2166 ends total.

Total number of ends of each color in warp.

White	822 ends
Blue	926 ends
Black	174 ends
Tan	244 ends
	2166 ends.

Your subscriber does not state what his system of preparation is, but I am assuming he is equipped for greys only, i.e., wet slashing. There are two courses open to him without going to any additional expense, that is, if his slashers are equipped with a color box; otherwise he will need one. One method is the one of beam bleaching, dyeing and slashing, and the other is bleaching and dyeing of the yarn on cones by the Franklin or other process.

I am giving in Fig. 1, Fig. 2, Fig. 3, and Fig. 4, the forms of the warping particulars sheets and dyers' instruction sheets for the two patterns given, together with explanatory notes in the captions under each illustration.

Beam Dyeing.

Taking up first the method of beam dyeing. The warps must be beamed as nearly perfect as possible, for good beam dyeing and bleaching depends very much on the beaming. Tension on the yarns from beginning to end must be equal, and I recommend the system of high speed warping, of which there are several in existence, wherein the yarn is drawn off the cones or other packages at a high rate of speed.

The beams must be carefully handled, operatives must not be allowed to put any pressure onto any part of the beams, by sitting on full beams, or placing one on top of the other to save piling space, etc. This and several other occurrences which the reader will often notice in any warping room causes "flats" on the beams and as the dye is forced through the perforated beams it takes the least line of resistance and consequently those places whereon pressure has been applied do not receive the dye as the remainder of the beam does, causing light and dark places, making very uneven colors, which in heavy grounds, chambrays or self-colors, spoil the cloth.

Bleaching on the beam is performed in a somewhat similar manner, only with this difference, the beams for bleaching must not be of iron. They must be of copper or such acid resisting metal that will not stain the yarn, and the yarn *must* be run off the beam and through the slasher as soon as possible after completion, and at the most, must not be left over four days in the wet state, otherwise, it will stain and tender.

As these beams are wet when completed, due allowance must be made in sizing the wet yarn as a greater percentage of size must be made than for dry yarns. The colors must be run separate from the white or gray as the case may be, if a pure white is needed the size must be pure, and preferably a bleached starch must be used, otherwise the "color" will be deadened and the result will be a "grayish" white.

Bleaching and Dyeing on Cones or Tubes.

The system of bleaching and dyeing on cones, warping from these and wet slashing, is somewhat similar to bleaching and dyeing on the beam, only the yarn is wound onto packages—cheese or cones—of about one pound in weight, from the ring or cop frame package, and placed into the dye pan, and by pressure or suction, according to the system used, the dye or bleach liquor is forced or drawn through the yarn and the oxidation, cleaning and complete process is done by one attendant. After the cones are dried they are "creeled" and beamed to specification, solid colors or to pattern as required, and then slashed.

There is one advantage in this process over beam bleaching and dyeing, and that is, the packages are less, more easily handled, there is less chance of uneven dyeing, the brilliancy of the colors is excellent, and one can dye to stock, with less waste of dyestuff, and warp as many ends to pattern as required; the warps made are in better condition to run on the slasher, at a higher speed. There is also less waste owing to less risk of uneven dyeing, for any discrepancy can be seen in the warping. Another advantage is, the yarn being dry will take up a greater percentage of size, giving a saving over sizing wet yarns.

I think the reader will see the advantage of this system over beam dyeing, for instance, if one beam is uneven or as sometimes occurred, mis-dyed underneath, or owing to loss of oxidation when using developed dye, the loss of

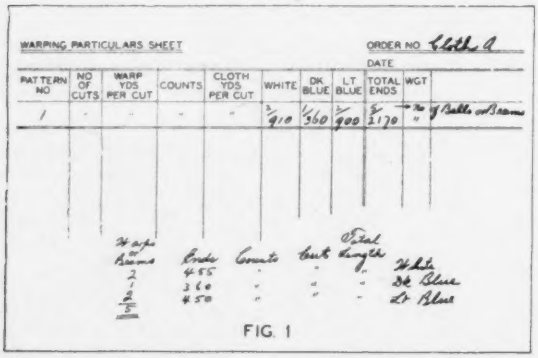


FIG. 1

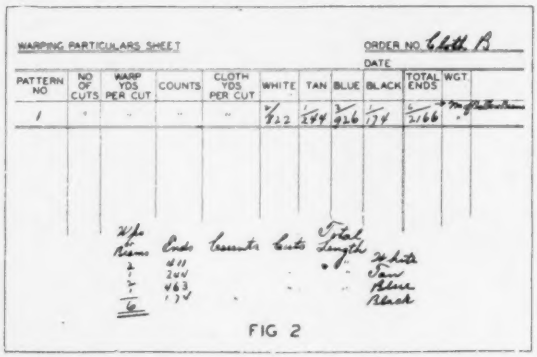


FIG 2

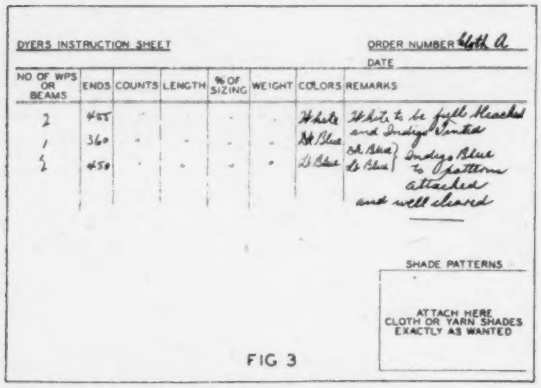


FIG 3

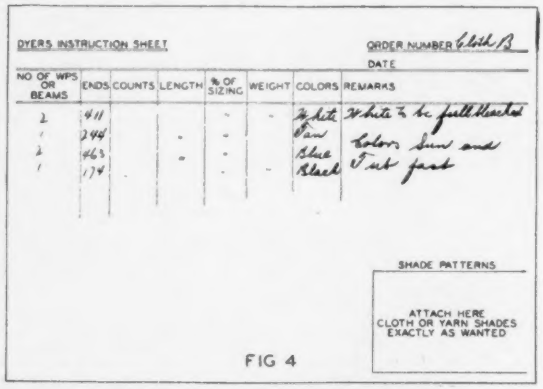


FIG 4

time and waste is more serious.

In making beams from cones or cheese, dyed or bleached, for slashing, in Cloth *A* it would be well to make each color separate—but in Cloth *B* the black and tan could be made to run to pattern, saving time and beams; besides being more solid and compact on the beam. In this process, or in Scotch beaming where it is inconvenient to run a small number of ends owing to the heavy drag of the beam, patterns can be made to come in with the general bulk of the warp when made for the weaver's beam. In this case, for both processes, the black and tan would be made as follows:

Tan | 2 2 2 4 4 | 2 2 2
Black | 2 2 2 2 2 | 2 2

17 Repeats.
Black 174 ends
Tan 244 ends
418 ends.

This makes five beams to the set. The beams are then put through the slashing process as described for beam dyeing. In the beaming from the ball in Scotch beaming, these two colors would be run onto one beam by running the two balls as one and denting in the expanding wraith as written. (See June 1925 COTTON on "Preparation of Cotton Dress Goods for Weaving.")

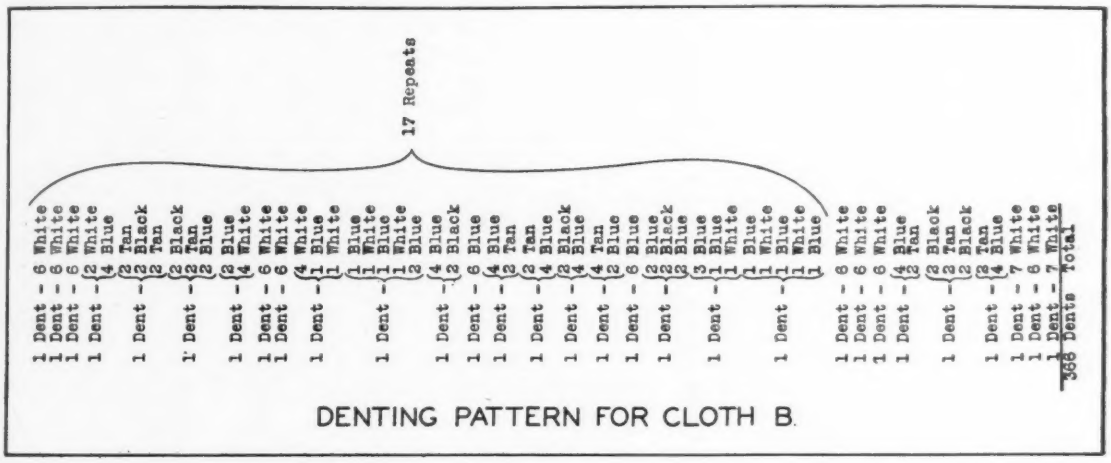
In the slashing process, when running patterns, the ground colors (in colors I include white) must be at the bottom, and the pattern must be run as near to the woven pattern as possible. Owing to the construction of the slasher, and the possibility of burning the yarns, and caking of size, one must be quick in starting to run and it is not possible to lay in the pattern as it ought to be.

In cloth *A* this is ideal, and could be run six ends in a dent, as follows:

6 White — 1 Dent
4 White } — 1 Dent
2 Dark Blue }
6 Light Blue — 1 Dent
4 Light Blue } — 1 Dent
2 Dark Blue }
5 White — 1 Dent (x)
5 White — 1 Dent (x)
} 90 Repeats
(x) This can be allowed for in the building of the side.

This layout needs only one separation band to separate the dark blue from the other colors to allow of correct picking of the colors in the drawing or healding process; and to facilitate this I suggest that a loomer's comb of say 32s counts be struck on the weaver's beam, for even if a little more expensive than gummed strip paper, they are, in my opinion, more economical in color slashing, in that they keep the ends straight just as they have run off the frame, and consequently more production in the loom, for that is what we are all seeking, and it is these little details which go to make the perfect beam and cloth.

In Cloth *B* the pattern is more difficult for the slasher, but if the patterns are given to him to look over before the beams are ready, and if he has several wraiths of different counts interchangeable, he will be able after a little study to arrange his denting, keeping in mind his ground colors. In this pattern, six ends in a dent would also do and then again, would require only one band to separate the colors after the weaver's beam is completed, that is, separating the black, this being on top. The average slasher attendant after a little practice would be able to arrange his patterns and colors bearing in mind that the best way is the one that makes the selection of the threads easy for drawing, twisting and weaving. The writer has supervised slasher men who have run colored warps for flannelettes of eight and nine colors and very intricate patterns that have been equal on the weaver's beam to any warp made by the Yorkshire dressing process, and at much less cost. The denting pattern for Cloth *B* is shown in the accompanying sketch.



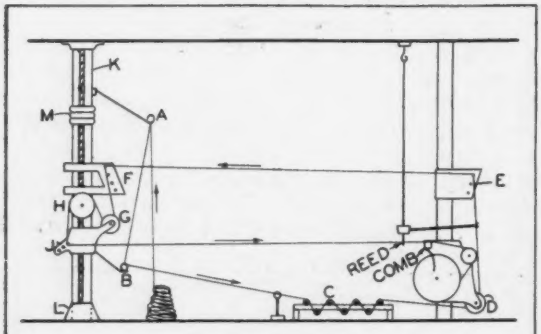
DENTING PATTERN FOR CLOTH B.

The System of Scotch Beaming.

In the system of Scotch beaming or the making of warps from cross ball warps and chains and rewinding onto weaver's beams by the dry slasher, the warps are made on the cross-baller or chain warper and the same particulars sheet shown in Fig. 1 can be used. The warps are then sent on to the bleach and dyehouse, processed according to order sheet and shade card. Warps for Scotch beaming should not be run back onto the cross-ball shell, but, at the finishing end of the drying cans after sizing, should be run into an oblong truck. The bottom of this truck should be covered with a piece of stout paper or some such material, and three or four lengths of cord, then on completion of the warp or any number which is run into the truck—they will be kept separate by paper or burlap sheets—the whole lot will be ready for handling without entanglement. As the warps are in pleats and the tickets visible, they are ready for the beaming machine as wanted.

The idea of keeping the warps in pleats is obvious to

anyone who has had experience in running warps made as cross-balls or ball warps, to keep out any twist and to facilitate speed in running. The end and end lease every 500 yards is for straightening up the warp if smashed in processing, although I prefer every fifth cut if somewhat about every 500 yards, for the beamer can then tie a different color to one end so that the dry taper operator can then see if his warps or beams are running level, for if one beam is running cut marks several yards ahead of the remainder, it means a great amount of waste. The half-beer lease is for counting the ends if any ticket is lost.



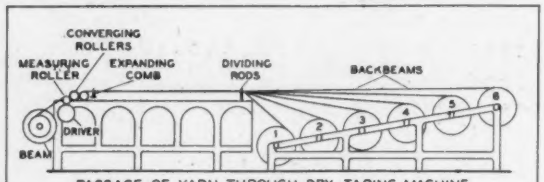
SCOTCH BEAMING
FIG. 5

The warp is run onto the back beam by means of a machine which allows for the gradual expansion into a sheet of the rope form of the warp. The machine at the headstock is somewhat after the style of a beam warper, only it does not have the wooden roller nor stop motion. It is driven direct, the beam engaging by the collar, and is turned by means of a crank or similar device. The operative stands in front of the machine with her foot pressed onto the starting lever, which keeps the machine in motion simply releasing the pressure which stops the machine to allow of piecing of ends, etc. There are generally two speeds to these machines, which can be used to suit the class of work run onto them. The speed increases as the diameter of the yarn on the beam increases.

Fig. 5 shows a rough sketch of this machine, and the method of tensioning the yarn during the passage. There are several makes, and each has its various tensioning device, but this machine to my mind is superior to any other in that it allows the operative to turn the beam back to piece ends without any hard labor and at one operation, also taking up the slack warp. First, the warp is passed through *A* and *B*, over and under the tension rods, *C*, around a flanged guide spool *D*, through the operator's hand upwards through grooved bars *E* and backwards to be opened out into two more sections by grooved bars *F*. From *F* the yarn is passed down to roller *G*, which is mounted into fixed bearings, upwards and over a traveling roller *H*, down to guide roller *J*, also mounted into fixed bearings, then forward to the reed and expanding comb onto the beam. The reed is swung from the top of the machine by a rope and opens out the warp before entering the comb. Suspended by weight *M*, connected by ropes and pulleys, roller *H* is free to move up and down the guide slots on the upright posts *K* and is kept in a normal working position, by an anchor weight *L*, which is regulated to suit the counts of yarn. Any extra tension placed on the yarn by an entanglement at the ball is communicated to the operative by the sense of touch, as soon as this occurs *H* descends under the additional tension and the anchor weight *L* is lifted, thus giving the operator ample time to stop the machine before a breakage occurs. If the beam is unwound to repair ends or to find lost ends, the suspended weight *M* causes *H* to ascend from its normal position; this takes up the slack and keeps the warp tensioned. When the beam is started again *H* descends to its normal position as controlled by *L*.

When the warp is finished the operator strikes a loomer's comb through the ends to keep the ends straight and in a sheet. The winding onto the weaver's beam is done by various types of machine, the principle being the same; to place the warp onto the beam and pattern as straight as possible. The one most commonly used is the one somewhat similar to the headstock of a slashing machine. The warps are placed into an inclined creel and the yarn comes directly from the beam through the dividing rods and then through the wraith, over and under the converging rollers, to the marking rollers onto the beam. The reader will notice in Fig. 6, which is a side view of a dry taper, how the yarn is drawn off directly and not under and over as in the wet slashing frame.

The beams are placed into the creels with the ground colors nearest to the machine, the ideal creel is inclined, the beams coming downward in steps toward the machine,



PASSAGE OF YARN THROUGH DRY TAPING MACHINE
FIG. 6

a creel holding nine beams is about the limit, so that each delivery of yarn just clears the next one.

The operator having decided on his denting plan, he can then bring each comb separately to his wraith and lay in each color separately, or, as I have done, fix up a rail with two inclined posts leaning backward and affix nine hooks, to hold the combs, on each post. The operation of "sleying" the pattern can be done very quickly.

All the beams must be well warped and every end found and pieced and all the selvages kept at a good tension, as any fault in beaming if only on one beam is the cause of loss in production on the dry slasher and also in the loom besides the risk of faulty cloth. A common cause is slack sides, and I have found it a good plan to leave an empty dent in the expanding comb when beaming, that is, between the first two ends and the last two ends. If proper adjustment is made and all beam flanges are carefully set, there will be a good hard selvage on the weaver's beam, owing to the slightly smaller diameter of the yarn on the warper beam next to the flange. Nothing is more troublesome than slack, drooping selvages while taping. In selvages made from special yarns, plied yarns, etc., a small creel suspended from the ceiling by hangers is superior to any behind the beams or on the floor, as they are out of the way when changing beams or any necessary adjustments

are needed, and saves floor space.

My reason for preferring this system is that after bleaching or dyeing, in the other systems the warps cannot be safely relied on without inspection, and in Scotch beaming every broken end can be repaired without danger of spoiling the yarn. In beam dyeing there may be uneven places, especially when dyeing fine counts, and these are not seen until too late to save trouble, and in slashing from beams made from cone-dyed yarns the machine cannot be safely stopped to piece up broken yarn. In beaming from warp dyed under modern conditions, the operator always has the warp constantly under supervision, can always turn back to find every end to piece up, the yarn is beaming at a high speed and the size is returned as there is very little friction. The dry taper can run at a higher speed than the wet slasher and also there is no risk of spoiling colors as in wet slashing, as all colors are dyed and sized thoroughly before beaming. Also the bleaching and sizing is done in a more thorough manner.

There are no lost ends to trouble the weaver, there is time to lay in the pattern equal to its position in the woven cloth, the yarns so processed also retain a great amount of their elasticity, and this is one of the factors, combined with the neatness, that the warp is wound onto the weaver's beam. That causes a greater production at the loom than any other process I know of, having had experience of all processes in the colored goods trade, from hanks to the latest processes.

I would suggest that anyone interested in this subject read my articles, "Preparation of Cotton Dress Goods for Weaving", in the June 1925 issue of COTTON, and "Analyzing for Texture and Cloth", in the November 1926 issue.

C. W. (CANADA).

Running Humidifiers Over the Week-end.

EDITOR COTTON:

I noted the question in May COTTON asking whether it is advisable for a mill to run its humidifiers over the week-end while the mill is stopped, even though they may be under automatic control.

This is a question that has not received general thought, although I know a number of mills where the matter has been gone into carefully.

I know of one mill making sheetings, where it was found that occasionally the work would start running light sometime Tuesday. The mill is equipped with humidifiers and sufficient automatic controls to enable them to carry the proper relative humidity in all departments all of the time. The practice had been to start the humidifiers about 30 minutes before starting time on Monday morning. The mill began to check the matter, but at that particular time it so happened that on the following three week-ends, there was considerable rain, so that the trouble did not show up again on Tuesday. They kept right behind the matter, however, and when, on the fourth Saturday and Sunday there was an unusually dry period with considerable wind, they found that the weights ran light again on Tuesday.

The result of the investigation seemed to indicate that the yarn in the weaving room, which had been made up on Friday and Saturday, retained sufficient moisture, but that the card and drawing sliver, and roving, being in a much looser form, dried out considerably, and that this stock reaching the weave room about Tuesday, caused the trouble, provided there had been a dry, hot or windy period on Saturday and Sunday. Therefore, the mill issued instructions that on each week-end, when it was unusually dry, the humidifiers should be started up for several hours during Sunday and then put into full operation at midnight Sunday. However, the instructions were that, if there had been considerable rain over the week-end, that the humidifiers should not be started up until shortly before starting time on Monday morning.

Since this rule has been put into operation, this mill has practically eliminated this particular trouble altogether. However, I would like to sound a word of warning with reference to the practice, unless the mill is amply equipped with automatic control, as otherwise the night watchman or mechanic would have to stop the humidifiers to avoid the humidity getting too heavy, as it would be an easy matter for condensation to start. In such an event there would undoubtedly be trouble with rusty rings and rolls, which would cause considerable trouble.

CONTRIBUTOR No. 4029.

Roving Lapping Up On Wooden Middle Roll.

EDITOR COTTON:

I would be glad to have some readers in a position to do so, discuss the causes of roving lapping up on the Washburn wood middle top roll. We have installed some of these. We run 1 3/16-inch American cotton, spinning 60s from a 10-hank double roving. We use the double boss roll, weight 1.275 grains. The distance from the center of the back top roll to the center of the middle top roll is 1⅜ inches, and the distance from the center of the middle top roll to the center of the front top roll is 1 inch. A friend has suggested that changing the middle roll gear would aid in eliminating this difficulty. I shall appreciate suggestions from any readers as to how to prevent this trouble under these conditions. CONTRIBUTOR No. 4047.

A Problem on Nasmith Combers.

EDITOR COTTON:

We are operating eight Nasmith combers and are having some little trouble with the air. The end looks as if it might be hanging on the nipper plate or feed plate, and the end gradually keeps holding back until the whole end will cut out. We can sometimes open the hand hole in the aspirator and it will run all right. All of our machines do not do this, just one end here and there. We have done everything we know to stop it, and I would like to have someone give me an idea as to how to remedy this trouble.

CONTRIBUTOR No. 4043.

What Causes Rust and Scale on Rings?

EDITOR COTTON:

Here are some questions which I would be glad to have some of your readers, particularly someone in Texas, answer for us.

What causes ring rails and rings and flyers in the card room to rust, even when the mill is running day and night? Also, what causes a fine powder to form on the travelers in the spinning room, especially near the humidifiers? Is there anything which we could put in the humidifier tank to precipitate this scale which forms on the ring travelers?

CONTRIBUTOR No. 4038.

Improving the Breaking Strength.

EDITOR COTTON:

In a recent issue of COTTON, "C.E.B.(N.C.)" asked the question "How Can the Breaking Strength be Improved?" I am glad to offer the following suggestions:

Inspect the cotton pile and find some way to remove all mats of cotton such as would be found in a pile that had been mixed by hand, for they positively are the foundations of an uneven yarn. The idea behind this suggestion is to operate the opening and picking in such a manner that it will positively make the evener belt run in one position upon the surface of the cones. Try to remove all thick and thin places in the web of cotton passing through the feed rolls of pickers, and in so doing the evener belts will run in one position upon the cones. Do not, by any means, fasten the evener or lock it. First remove the thick and thin places from the web of cotton. Then watch the even laps come from the finishing pickers. Make the *yardage* of each lap from the finisher pickers weigh as evenly as possible, then increase the draft of the card to say 121 inches, allowing six per cent for that waste at the card. Make a 45-grain sliver by changing the draft gear. Then speed the doffer in proportion to the reduction in weight. This will maintain the original production. This also will clean the cotton more. Next, be positively sure that each card is set exactly as the next card running the same kind of work. This insures uniformity of sliver.

Keep the weight per yard even, which allows the drawing rolls to draw evenly at the drawing frame. Change the sliver from 57 grains to 45 grains at the drawing, making the draft of the drawing frame six inches.

I will also take this space to suggest the proper method for all roll settings. There are three things that guide us in roll setting: the speed of the frame; the weight of the sliver or bulk; and the length of staple. First, I would suggest running the cotton in between the rolls and then testing in the following manner: Press the end of a steel scale against the sliver between the rolls. If it is found that the sliver gives way easily under the pressure, this is a tell-tale, advising the closing of the rolls. If very hard to push the scale through, it would denote that the rolls are too close and need spreading.

If in "C.E.B's" case he will adhere to the following principle, he won't be far wrong: Always keep the two front rolls 1/16-inch over the staple, or as near this as possible. Always, on all rolls, whether drawing, slubber, intermediate, fine frame or spinning frame, follow the foregoing suggestions. In all cases test the tension on the sliver between rolls. If the tension is hard, open the rolls; if easily broken under pressure, close the space between the second and third, also third and fourth rolls until the tension is easy. Where one cannot push the scale through the sliver between the rolls, it signifies that the bulk and weight are too great for the rolls to handle, and the pressure may be relieved by spreading them.

Great care should be taken with drawing frames—correct weight of card sliver, sufficient weight to hold the rolls in contact with the steel roll (but not too much weight), proper roll setting, correct tensions, sufficient opening in the hole of the trumpet. One should have a taper ream on hand with a taper of 3/16-inch to 3/8-inch in five inches. Thus ream the drawing frame trumpets with this taper ream. Be sure that there is no tension in the trumpet hole.

If after the trumpets are reamed the sliver becomes taut, change the compensating ear on the calender rolls and allow the strands to run with a slight sag, especially the center slivers of each strand.

If all of the foregoing suggestions are correctly applied "C.E.B." will find that he has a sliver that will give a strong even yarn.

After the elimination of mats in cotton pile and tension on trumpets and slivers between trumpet and front rolls, also with properly set rolls, it will be found that the machinery has to be in very bad condition from there to the spinning to make a poor yarn. I would advise trying to run the front roll of drawing frame at 150 r.p.m., if possible while holding up on the production. This will have to be determined by figuring the exact production at that speed and then taking the tests of stoppage of the frames. A great many times slow frames will take care of all of the card production more easily than fast frames.

Adhere positively to standard twists on *all* speeders, but apply the following suggestions on the lay and tension: First change the hank on the slubbers from .55- to .61-hank from a 45-grain drawing sliver $1.2 \times .781 = .937$ turns per inch. Move the decimal point one place to the right in the twist per inch, making it read 9.37 lays per inch. Put a lay gear on to give 9.37 lays per inch; or, if this can't be obtained by gears, keep on the under side of the foregoing. Never go over the figures the twist shows. Find a tension gear that handles the tension from the start to the finish. If the tension becomes too taut and the rack gear won't give the exact tensions by changing one tooth, change the lay gear one tooth less lays and leave the same rack gear on. Get the correct tensions by dickering with the lay and tension gear. This will insure against a stretch in the yarn roving, increasing the strength of the yarn.

This tension question is a most serious matter. One must get the tension exactly right upon the first layer of roving on the base bobbins. This is obtained by winding the rack to the *extreme* end of the cones, seeing that the belt edge is exactly on the edge of the bottom cone. Change the gear on the end of the cone to get the exact tensions on the first layer of roving. Count the lays per inch, as has been suggested, being exact. Get the correct lays per inch; get the rack gear to maintain the same tension as that with which you started. Stay with the machine until a complete set of roving has been made. If the tension is too taut, try one tooth less lay as suggested previously. This tension suggestion applies to each process of the speeders. All roll setting should be conducted as suggested, and personal supervision given in all cases.

Run slubber, if 12×6, 550 r.p.m. on flyers, if $11 \times 5\frac{1}{2}$ inches, 575 r.p.m. on flyers. Take the .61-hank roving and make 1.45-hank on 10×5 machines. Set the intermediate on the same principle. Run the flyers 8.00 r.p.m. Get the correct lay per inch proper roll setting and tensions. Take 1.45-hank and finish 3.70-hank as at present.

Instructions should be followed very closely. Keep to $1.2 \times \sqrt{}$ on all frames. Be positive about the roll settings, lays and tensions. Keep good top rolls in frames everywhere; also keep them oiled properly. Run 8×3 inch frame 1000 r.p.m. on the flyers. If a 7-inch frame is

used never run flyers over 1200 r.p.m. Experiment with one frame of each process to get one adjusted properly. When satisfied with the test results, be sure all other roving is run out absolutely, for a mixture of the two processes will raise havoc in the appearance of the cloth.

TOM (MASS.)

Watch the Little Things.

EDITOR COTTON:

I am submitting in this letter some questions for the overseers to think over and apply to their jobs in the thought of seeing how much they can save their companies each year by watching the little things in their own departments:

How much can each overseer save his company by studying conditions in his department and making every effort to fight down the loose ends that come up each day? By "loose ends", I mean many things—production, high cost, waste of all kinds, supplies of all kinds and waste of time and power.

Does the overseer ever stop and think how much power is lost each year by stoppage of machinery in each department?

How many pounds of good white cotton go out in sweeps each year, sold for the cost of sweepings? Do you think that all of this can be stopped and white cotton kept off the floor? It can be done.

How much oil do we waste each year by careless oiling and a "don't-care" system on the part of the overseer, section men, second hands and a bum oiler?

How many broken places could be saved each year if all the help were trained right up to how to fight waste and were taught that waste lost money? Good fixers, second hands and overseers can cut this down.

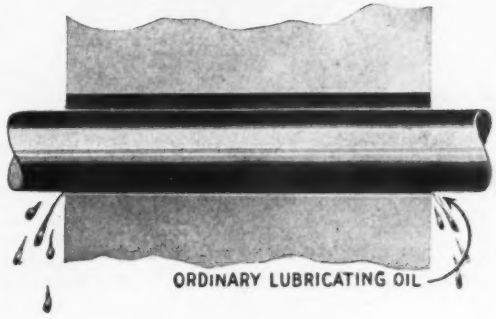
I wonder if the overseer ever figures how much time is lost in the course of a year by each individuals talking, thereby stopping others from their work? Some of this can be stopped by good training and giving the help a square deal.

How about hard waste? How much does the overseer figure he can save each year by getting each individual to fighting it and saving everything they can? There is a great loss here, paying the labor cost up until the yarn is produced and then putting it in waste. There are a great many causes for this, namely, slack bands, bad tape, black oil, tangled frames, tangled spools and bad spooling. Some of the help may be too handy with knives, and careless in many other respects. This can be cut in half in the average mill.

How about the waste caused by burning lights in the department when not needed? The overseer will think I am getting down to a fine point, but these are facts that one can't get around.

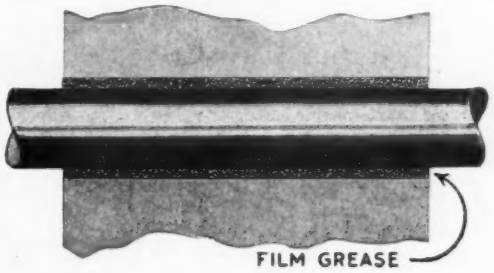
I, myself, am an overseer, and I know the road we have to travel. I have my ups and downs each day, but see what "Old Timer" has to say about it. My advice to the overseers is that they put on their thinking cap; that they try each day to do something that will make the load lighter and better conditions in the department. In order to do that our help will have to have better training, and they will have to be taught the real meaning of the word waste; they will have to be taught the better way to do things

How to Lubricate



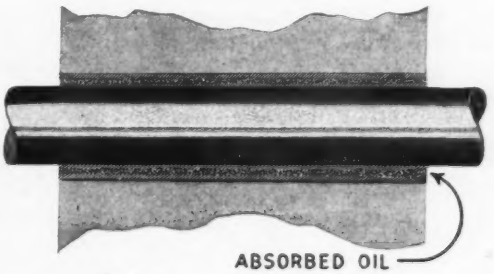
Wrong

A thin oil can't hold a heavily loaded shaft in place. It has too little film strength. The oil doesn't stay in the bearing; it runs out onto the floor, product, or machinery; or it evaporates. Metallic contact is inevitable. Wear is excessive. Power is lost.



Wrong

Grease is generally better than a thin oil because it does possess film strength, but it is far from being the best lubricant. It does prevent metal to metal contact and it stays put. But it is a great power waster. It is too sticky. It is the opposite extreme of a thin oil.



Right

Houghton's Absorbed Oils are ideal because they have both high film strength and excellent lubricating value. They contain a film oil which prevents metal-to-metal contact and a second oil which furnishes the desired slipperiness. One oil is absorbed in the other. Two oils in one. They STAY PUT.

Power is saved. Less lubricant is used. Products are protected because there is no splattering. Machinery lasts longer. Money is saved in every direction.

Want literature? Want to have a Houghton Man call on you?

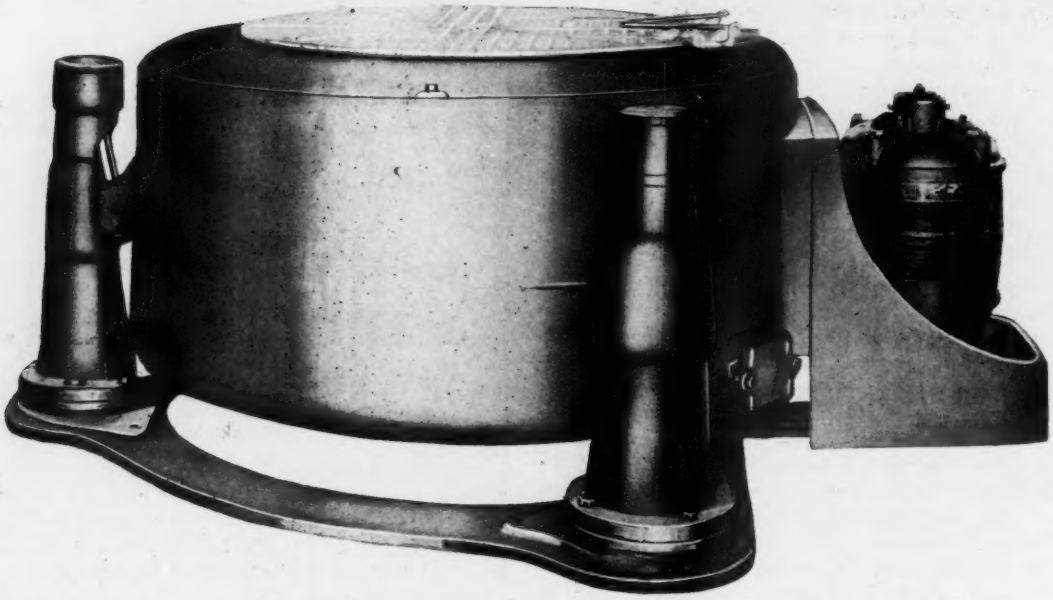
Since 1865

E. F. Houghton & Company

P. O. Box 6913 North Philadelphia, Pa.

And All Over the World

C2-56



"Make it self contained—build it low and keep it simple!" said the textile engineer.

And here is the result. An extractor without "gingerbread" fittings to retard loading and unloading. A real Tolhurst,—self contained motor drive with friction clutch,— mounted on a bedplate (requires no pit nor special foundation)—and built *low*.

Tolhurst specialists have combined in this machine simplicity, safety, ease of operation, sturdiness and greater capacity in a unit that may be moved from one department to another.

A Tolhurst engineer will gladly discuss this machine with you, or if you prefer a catalog containing full information will be sent on request.

TOLHURST
REG. U. S. PAT. OFF.
CENTRIFUGAL
EXTRACTORS

© T.M.W.
TOLHURST MACHINE WORKS, INC. ESTABLISHED 1852. TROY, N.Y.

New York Office: 183 Madison Ave.

DESIGNED AND BUILT BY SPECIALISTS

Southern Representative:
Fred H. White,
Independence Bldg.,
Charlotte, N. C.

Western Representative:
William T. Powers,
8 South Dearborn St.,
Chicago, Ill.

San Francisco Representative:
B. M. Filhashy,
Merchants Exchange Bldg.,
San Francisco, Calif.

Canadian Representative:
W. J. Westaway Co.,
Westaway Bldg., Hamilton, Ont.
275 Craig West, Montreal, P. Q.

and what it costs to make mistakes, and above all, they should be taught "Safety first".

S. L. E. (TEXAS).

What Causes the Filling to Shell Off?

EDITOR COTTON:

Being a subscriber to COTTON, and one who considers the contents of great value, I wish to ask you to publish this old question for weavers, and I shall appreciate having some of your readers give their experience and opinions on it.

What will stop shelling off of yarn from a filling bobbin, in a Draper automatic loom, 40-inch, running 165 picks per minute, after the following attempted corrections have been made and proved beneficial, but not sufficiently successful? New three-point cams and new cam balls have been put on the spinning frames, the length of the rail traverse increased to 1 7/8-inches, lay increased to 25 down fast, and 88 up slow. The power on the loom has been reduced to a minimum. The relative humidity is automatically controlled at 65 per cent in the spinning room, and 75 per cent in the weave room.

I shall be interested in any suggestions which your readers can offer.

CONTRIBUTOR NO. 4042.

Preventing Pickers from Sucking Back Motes and Trash.

EDITOR COTTON:

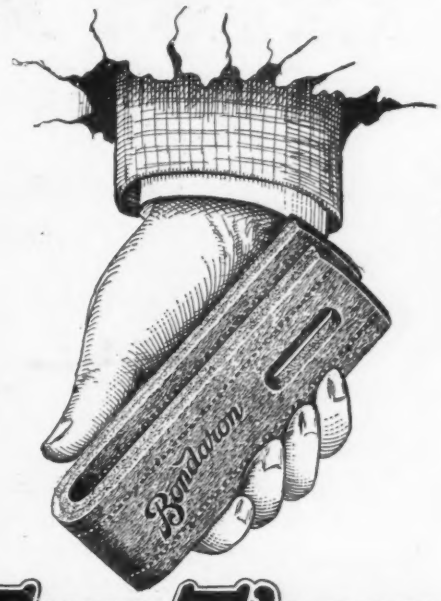
In the June number "Contributor No. 4019" asks for suggestions to prevent the sucking back of motes and trash thrown out by the beaters, on his old style Atherton pickers.

This difficulty is common enough on old pickers and particularly so on machines built over 25 years ago. These old machines were usually made with solid doors to the mote box so that all the air for operating the machine had to be drawn in through the space between the bottom of the feed apron and the top of the frame of the machine. This space was about four to five inches wide and opened directly on the grid bar section. Any air blown in at this point blew right against the point on the grid bars where the motes were coming out, and naturally blew a lot of them right back into the machine through the lower bars.

The remedy for this is to reduce the intensity of the draft at this point, which can be easily done by drilling a number of holes in the mote box doors. These doors should be simply honeycombed with about 1-inch or 1½-inch holes.

It can easily be seen that admitting air here will slow down the speed of the air coming in at the back of the machine. If motes are driven out into the teeth of a gale blowing against the grids, they are more likely to be caught and drawn back through the grids, than if the air is drawn from all directions, and consequently, with less violence.

This assumes that "Contributor No. 4019" uses blade beaters. If carding or Buckley beaters are used, he could take advantage of another arrangement which I found adequately described in the March 1927 issue of COTTON, on page 426. I feel sure that the manufacturers of the Buckley beaters could furnish a blueprint of the arrangement, if



Try Them

BE CONVINCED BY COMPARISON

If you've never tried "Bondaron" Lug Straps, you have no idea of their amazing strength, extreme mellowness and cushioning effect.

We know that "Bondaron" Lug Straps are superior to others on the market, because we have proof in the form of letters and repeat orders from scores of the largest mills throughout the country.

Bondaron LUG STRAPS

outwear straps previously used, sometimes lasting four to five times as long. Reports show that they cut to the minimum the breakage of picker sticks and save the time required to replace them, to say nothing of the increasing of production.

If you are willing to be convinced, and want to cut your loom leather costs in half or more, purchase a trial order of "Bondaron" Straps today and compare them with any other strap on the market.

Manufactured exclusively by

CHARLES Bond COMPANY

Leather Curriers and Manufacturers of Belting and Textile Leathers

617-619 ARCH ST., PHILADELPHIA, PA.

LATEST ADDITIONS TO the GDC SERIES of Homogeneous Vat-Dyestuffs

Indanthren Yellow 5 G K
for pure shades of yellow of a bright greenish tone

Indanthren Brilliant Orange G K
for orange shades of remarkable brightness

Indanthren Scarlet B
for fine bright scarlet-red shades

Indanthren Brilliant Green G G
for brilliant green shades of a yellowish tone

Indanthren Navy Blue R
for full shades of navies of unusual clearness

Indanthren Brown R R D
for reddish shades of brown of good depth

Colors of excellent fastness to light and washing

Recommended for use alone or in combination on all vegetable fabrics and rayon.

Well adapted for machine dyeing.

GDC

GENERAL DYESTUFF CORPORATION

Sole Distributors in the U. S. A.
of the dyestuffs manufactured by
I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT,
Frankfurt, a. M., Hoechst a. M., Leverkusen a. Rh., Ludwigshafen a. Rh.
and by
GRASSELLI DYESTUFF CORPORATION
Albany, N. Y., and Grasselli, N. J.

NEW YORK, 230 Fifth Avenue

Boston, Mass.
159 High Street

Philadelphia, Pa.
111 Arch Street

Providence, R. I.
40 Fountain Street

Chicago, Ill.
305 W. Randolph St.

Charlotte, N. C.
220 W. 1st St.

San Francisco, Cal.
38 Natoma Street

this man would not object to this. (This arrangement was also illustrated on page 123 of the December, 1927, issue of COTTON.—Editor.)

Referring to the cuts in the March, 1927 article, it will be seen that the opening of auxiliary slots below the grid section has the effect of reducing the amount of air going through the grid bars, so that fewer motes are sucked in. This arrangement was designed for Buckley beaters, but will also work with the Kirschner as well. It is not, however, recommended for blade beaters, as it is very likely to cause them to choke up. With blade beaters immediate relief can be secured by drilling the holes in the doors as suggested.

CONTRIBUTOR No. 4022.

Desires Methods of Counting Warp and Pick.

EDITOR COTTON:

I would be glad to have the opinions of some of the readers of COTTON as to the proper way of counting the warp and pick in cloth. Some claim that the count is not legal within four inches of either selvage, while others claim that the count (especially of the pick) in or on the selvage is sufficient and is as much of a standard as is the count in the body of the cloth. I remember a court case in Fall River sometime ago where the standards on width, warp count, filling count, weight, etc., were necessary in each case, and the standards were stipulated.

If any of your readers can throw any light on the proper practice of counting warp and pick I would appreciate their giving this information through the "How Other Men Manage" department.

CONTRIBUTOR No. 4036.

Some Further Experiences With Cork Rolls.

EDITOR COTTON:

In the April issue "O.T.E.(N.C.)" asked some questions about cork rolls. He wanted to know, on 26s and 30s, whether the work runs better; and whether anyone had noticed the amount of top roller waste; and also as to settings for 30s warp, with a draft of 12.30, from 15/16-inch cotton.

The larger diameter top cork rolls used will give less clearer waste. For example, a test was made in a mill first using 1-inch top rolls and then 1 1/8-inch rolls; and the 1-inch produced the most clearer waste. Subsequent tests bore out these results. The end breakage is high when new cork rolls are put in, but as they are used they become shiny, and the end breakage reduces considerably.

Cork rolls are affected by weather more than leather rolls, this being especially true on combers. The clearer waste from cork rolls has more heavier substance, in proportion to the amount of lint of short fiber on the clearer. The yarn does not appear to have any more specks, but when observed closely, it does appear to be heavier substance in the waste than formerly.

It is difficult to give settings, because of the effect of local humidity, twist and mechanical conditions, but offhand I would advise setting the first roll 1/32-inch over staple. Of course the most common diameters for spinning rolls are: 1-inch front, 7/8-inch second and back, on bot-

"Watch-Dogs of the Weave Room"

You can check the looms that are stealing time when you link up Loom Pick Counters with watchful overseers. You can pick out the laggards and get *more picks* by getting more running-time.

You may *estimate* that running-time will average about 65% of the weave-room day. Put VEEDER-ROOT Pick Counters on looms and you'll catch some running *short* of your estimate. Running away with your profit!

You can readily figure running-time from the records of VEEDER-ROOT Pick Counters. A loom that should make 130 picks per minute may show but 32½ per minute—and show it is going but 25% of the running time. Then it's time your overseer stepped in, and stepped-up the pace of the weaver.

Use Veeder-Root "watch-dogs of the weave room" to detect looms that steal time, operatives that waste time; loom fixers that lose time for both.

Write for Textile Counter booklet C, or ask for a trial of the Counters.

Veeder-ROOT INCORPORATED HARTFORD, CONN.

Southern Representatives:

Carolina Specialty Co., Charlotte, N. C.

E. E. Lovern, Newnan, Ga.

To transparent velvets

. . . du Pont Super-Extra gives exquisite delicacy in texture and tone

TRANSPARENT velvet commands recognition in fashion circles as the outstanding fabric achievement of the year.

And its success, as practically every manufacturer will tell you, is largely due to still another achievement—du Pont Super-Extra yarns.

To the mill man there are definite contributions which Super-Extra makes to sheer velvets. Among the most important are the following:

First—Super-Extra has *more* filaments per thread. It gives greater coverage. It makes possible that rich, "bloomy" surface.

Second—The added softness of Super-Extra lends a distinctive "feel" to transparent velvet—and to the finished garment the subtle draping qualities peculiar to this fabric.

Third—The subdued lustre inherent in Super-Extra yarn results in an exquisite sheen that no other yarn can give.

In considering the yarn best suited for fine quality rayon fabrics such as transparent velvet, do not overlook the fact that du Pont Super-Extra is being used today by the finest fabric houses in America. Transparent velvet is but one of its contributions to the textile trade.

There are several multi-filament yarns—but there is but one Super-Extra. It is made only by du Pont. For information and prices, write or wire Du Pont Rayon Company, Inc., 2 Park Avenue, New York.

DUPONT RAYON

Reg. U. S. Pat. Office

DU PONT SUPER-EXTRA RAYON

tom, which might allow setting the rolls close, but in many cases the roll gears will not allow a close setting. However, the closer set to the staple on the front the better. If the staple is uneven and comes 1-inch often, I would set to the 1-inch, and set the rolls 1/32-inch to 1/16-inch over the staple at the front and 1¼-inch, second to back roll. Other roll weights and twist might call for wider settings.

Y.F.(R.I.)

Preventing Split Laps on Combers.

EDITOR COTTON:

I am having some trouble with laps splitting in my Whitin combers and would like to get some information from other readers of COTTON that would help me to overcome this difficulty. I have Whitin laps. The sliver lapper has 20 ends up and 45-grain card sliver produces a 510-grain lap. The front steel roll makes 275 r.p.m. and is 1½ inches in diameter. The ribbon machine has four ends up of the 510-grain lap, producing a 477-grain lap. The front steel roll makes 333 r.p.m. and is 1¼ inches in diameter. We use full 1 1/16 inch cotton.

Any suggestions as to the cause of laps splitting on combers will be appreciated.

CONTRIBUTOR No. 4049.

On Taking a New Job.

EDITOR COTTON:

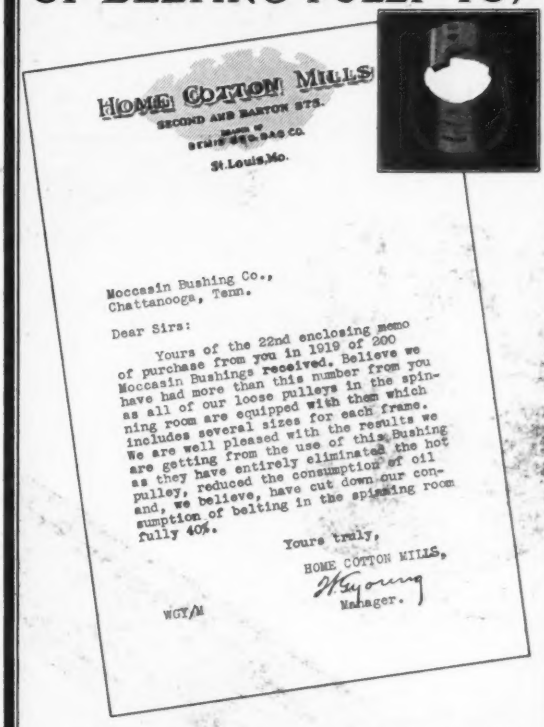
In reading through the November issue of COTTON, I notice the article of "O.T.(N.C.)" entitled "Taking a New Job." This, in my opinion, does not mean leaving one job and going to another one every time, but means renewing yourself on the job that you now have and taking a different view of things as though you were on a new job.

It has not been very long since we, at this plant, were overwhelmed with an extra amount of work that took up our time, causing us naturally, to neglect some of the things which we were in the habit of keeping up with closely. When this work was finished I told the foreman that we must now start back over the rooms and inspect them, taking the same attitude as though we were on a new job; going over everything as if we knew nothing about the room and check up on things.

So, I believe we all, at different times, should take stock of our departments as though we were new on the job, for then we look at things differently from the ordinary way of passing by in our daily routine work. We should try to find some easier way, or quicker way of doing things. This in turn, makes it lighter for the operator, makes the machine go better and in turn gets off more production. There is nothing that helps you more to keep help than for the work to run well. It's interesting to listen to the operators when they get out among themselves and talk over "how the work is running." They do not as a rule discuss the wage scale every much. It's "How's everything? Having a good time? Your work running good?" For the wage scale is on an average among most all southern mills.

Then again, we would never know how the machines

MOCCASIN BUSHINGS
"CUT OUR CONSUMPTION OF BELTING FULLY 40%"



Notice the advantages listed by this user — "entirely eliminated the hot pulley" — "reduced the consumption of oil" — "cut down our consumption of belting in the spinning room fully 40%."

Unusual bushing performance due to the patented Moccasin Bushing principle. Specially treated white pine plugs carry oil to the bearing surface in a continuous film, eliminating friction.

Our trial order offer will make available to your mill the advantages of Moccasin Oil Distributing Bushings. Write us about it.

HIGHEST GRADE PHOSPHOR BRONZE

Moccasin Bushing Co.
CHATTANOOGA -:- TENNESSEE

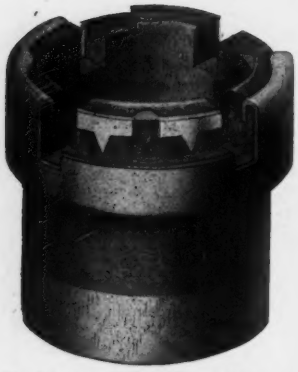
WILSON BROTHERS BOBBIN CO LTD

BOBBINS & SHUTTLES

for the TEXTILE TRADE.

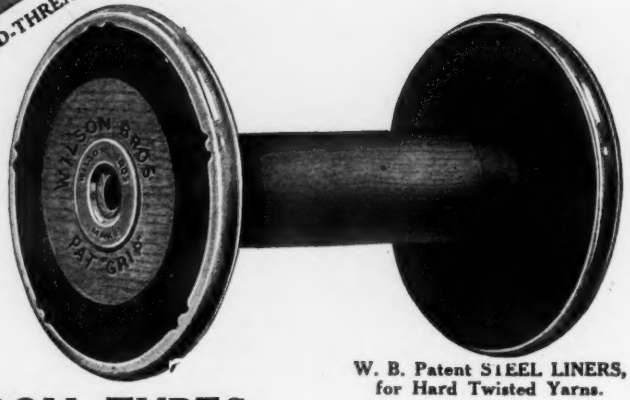
ESTABLISHED 1823

TRADE MARK



W. B. Pat. "GRIP" SHIELD.
Absolutely Secure.

W. B. HAND-THREADING SHUTTLE



W. B. Patent STEEL LINERS,
for Hard Twisted Yarns.

CARDROOM TUBES,
RING BOBBINS,
WINDING BOBBINS,
PIRNS, &c., &c.

Largest Makers in the World.

WILSON BROS. BOBBIN CO., LTD.,

GARSTON,

LIVERPOOL.

Telegrams: "NUGGET, LIVERPOOL."
Codes: A B C, A1, & Marconi.

—*Agents* **LEIGH & BUTLER,** *Boston, Mass., U. S. A.*

were getting out of shape in their daily performance, for any machine, in the course of time, needs attention from various points, such as worn bearings, loose bolts, etc. Taking stock occasionally on these points keeps the machines up on repairs, makes the operator more careful in his oiling and cleaning and any other daily duties which might have been neglected during the rush of extra work.

Occasionally we should go over the machinery, getting all the speeds and comparing them with the last records to see that there has not been a gear put on by some mistake, not intentionally, but through some mistaken cause. Sometimes the numbers get worn on the gears and it is difficult to make out the correct figures meant on this gear. Sometimes the darkness of the room has its effect on observing correctly the figures. In case there is a man who is indifferent to his trust, he will be caught up with. There are quite a few gears that need attention frequently, and no one knows how many have been looked after from the time they were last checked up on.

This method of checking up keeps a room in good running condition. Assuming that everything else is fairly well taken care of, in a room that is considered running good the men get the credit for it, just the same as they would get the credit for it if it were running bad. If it is running well, we say "That man is on his job"; or "He is the right man for the job, etc."

T.A.D. (GA.)

Promotion in the Mill.

EDITOR COTTON:

I am greatly interested in the contribution on promotion from "N.E.W. (Mass.)" in your issue of January, 1928. As an Englishman who has graduated in the university of hard knocks, and also the real one, I have heard both sides of this question discussed during my life. It has proven a question of great interest in England, and I have no doubt will continue to do so. I believe in all countries and all the large industries, it provides a topic of perennial interest. In my humble opinion, there is no definite answer, owing to the various factors which must be taken into account. It embraces the whole gamut of human emotions, and needs to be considered in the light of a broad-minded attitude. However, there are certain definite facts which must not not be overlooked, and I will try to enumerate some of them in due order.

We must assume that the persons who have accumulated and hold the capital of any concern have attained an intelligent outlook on life. Therefore, we can proceed to follow their line of thought on the assumption that human nature is pretty much the same among all people. I believe psychologists agree that we all react to stimuli in the same manner, but with different intensities, due largely to environment, heredity and education.

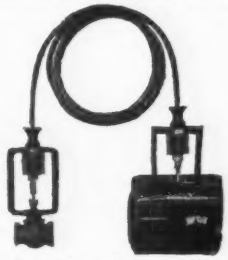
I think all will agree that knowledge is not repaid in monetary value. We find throughout history that the cleverest men have not received their due financial reward, hence, because one person has a greater knowledge, it does not follow that he will receive the highest positions in industry, which are coveted generally for the financial reward. Even in a person of the highest intellect we find defects of character which may render him unfit for the higher positions. This alone may explain some of the apparent injustices which are inflicted on some persons. We

Are YOU Overlooking This VITAL Point?

EXPERTS agree that it is impossible to maintain *relative* weave room humidity *without room temperature control.*

You can prevent condensation of moisture and the consequent "roof or ceiling drip" by the installation of

Sylphon **No. 11. Liquid Transmission REGITHERM**



Accurate Weave Room Temperature Control preventing excessive high or low temperatures means strong cotton, silk or worsted yarns, less static electricity and parallel laying fibres more easily carded and drawn.

No matter what type of humidifying system you use a Sylphon Regitherm employing the original and only genuine Sylphon Bellows as its expansion unit will make for its greater efficiency and prevent damage to fabrics.

Let us tell you how the Sylphon Regitherm has satisfactorily met just such problems as yours in hundreds of textile plants.

Mail this coupon or write today for complete Illustrated Bulletin

The Fulton Sylphon Company

Originators and Patentees of the Sylphon Bellows

Knoxville, Tennessee

Sales Offices:
New York, Chicago, Philadelphia, Boston, Detroit, and all Principal Cities

Dept. U

Gentlemen:

Please send Bulletin on the Sylphon No. 11 Regitherm.

Signature .....

Company .....

Address .....

City ..... State .....

will assume that the factor is negligible when a case presents itself to the boss for solution.

This leaves us with the bare case of a practical person versus the college trained graduate.

Cotton spinning is becoming a more scientific industry daily, in view of the competition which assails all countries, especially in coarser counts. Can the practical man face the new attacks which are always likely to be sprung upon anyone's market in changing and meeting this competition. There is no doubt that the majority of practical overseers can carry on in the good old way, and even improve slightly some of the glaring faults. This, in a well-established firm, may suffice to promote him. We must agree that it is a practical impossibility for him to learn all the principles which underlie the industry, in the realms of chemistry, mechanics, economics, and above all, mathematics. I find that this latter subject is the least understood, and I believe that it is the most vital one in the industry.

Comparisons of any description are almost impossible without the assistance of statistical methods. Hence, if the practical person does attain the highest efficiency, it is more by good luck than management.

The student should have had a thorough grounding in these principles before graduation in any textile college. Therefore, it ought not to take a very long time before he understands his department. Even if he cannot do the job himself, he must know when his men do it correctly, and if not, why. This may or may not be a better way than doing a job the same as the men before him, not knowing if it is right, and if so, why. Of course the big test of this factor is changing to meeting the new demands consequent upon competitive requirements. If everything could be run in grooves for centuries, there might be a good deal said in favor of promoting practical men.

Owing to the speed of progress and the severity of competition, I must state definitely that I favor the promotion of the trained intellect. Life is change!

This brings us to where the greater development of life is obtained. Americans, even more than any others, seem to be great disciples of university training, and all must agree that the universities have led the way in the principles of scientific improvement. If there is no incentive to their graduates, the universities must inevitably suffer. This will undoubtedly cause America to lag behind in the race for supremacy, and no country can avoid the conflict. No progress means retrogression.

Thus we see that nationally, the incentive factor is greater for the graduates than the practical man, because the whole life of America is, and will be, dependent upon the scientific progress which must accrue from research in the colleges. All progress is correlated, and research in textiles is bound up with the other branches of learning.

It is Utopian to expect graduates to work like operatives, hence, the option is promotion for them or none will go into the industry. And bear in mind, the trained intellect has a big field of choice of occupation. Now the national life of America will suffer, because the trained leaders of the nation will be a minus quantity. America is now a nation, and the universal outlook of life can only be obtainable by the graduates, and in exceptional cases, by practical overseers. The richness of the country will cause envy among the other nations, and then war in the long run. This will test the quick wits of the population, and the leaders in this business must inexorably be the graduates, either in industry or out of it. If America is short of these trained men, she must suffer. The same principles of textiles are common to every form of life, including war, and never forget it, a war once lost means a big blow to the country, which may put the clock back for years and perhaps centuries. England has always insured that defeat was not her portion, because of this fear, and the American statesmen are evidently alive to this evil.

"N.E.W." states that the practical man obtains his knowledge by the sweat of his brow both in the mill and outside. I agree, and only the hope of reward will cause men to do this heartbreaking toil. However, the student has the same difficulties. He is only impelled to study, and be eliminated to graduation, by the hopes of his parents. If they have the money, which may not be excessive, to procure a good education for their sons, surely they are also entitled to some returns for their investment. The majority of students' parents have to sacrifice something for the education of their off-spring, and although there are benefits other than promotion, it is the factor which decides them to get an education for them. Has "N.E.W." tried to calculate the cost for this training, and how many years of apprentices' wages has he lost by not starting work at an early age?

Another great draw back to the practical man obtaining promotion is nepotism. "The piper calls the tune", is a truism. Hence it is natural for directors to promote their sons, also relatives and friends. Every father loves his children and desires to give them a flying start into life. Whether it is the better policy or not, it is natural, and will always happen. Even if unions can prevent this, the same thing will happen in another form, because there is no man perfectly fair. All men have a bias in favor of friends and relatives, and the man who tries to be fair usually goes to the other extreme.

Economic pressure will always cause some persons to be operatives to do the manual work. Even if the poorest do go to the wall, it is the natural law for the present at any rate, and the best-intentioned among us can do very little in ameliorating this harshness. Birth control cannot be employed to its logical limit, because the nation dare not allow it. On the other hand, social influence will always insure the graduate rising quicker, because of the greater power welded by these organizations to insure a certain standard of life for their class. "Like attracts like" is the law of the action of the human brain. Whether the action can be changed is a question for the future to solve.

I trust "N.E.W." will be pleased to see the views opposite to his, even from an Englishman, who has also his problem to solve in life, due to similar natural laws.

E. S. (CHINA.)

Fafnir Plans Plant Addition.

The Fafnir Bearing Co., New Britain, Conn., has contracted for the erection of a new one-story building 120 x 60 feet and for a 60-foot addition to an existing six-story wing of the present factory. The new building will house a thoroughly modern hardening department for which new equipment will be provided. The six-story addition will enlarge the working capacity of several of the manufacturing departments and enable them to handle a larger volume of business more adequately. Plans are also under way for the construction of still another six-story building.

The MILL-AGENT SPOKE VERY *EARNESTLY*

"*That's* why he said"

"NOW, we come to the question of spools," remarked the mill agent to the assembled board of directors. "Unfortunately for our profits, we have in the past considered spooling only secondary. In consequence, I fear that we have not kept pace with the great improvements made in spools.

"Some months ago," he continued, "I gave a small order for Lestershire Fibre Spools. Several machines were equipped with them. I can now report on results.

"Lestershires effect economies in spooling not obtainable otherwise. The production of the Lestershire-equipped machines is better in quality also.

"The Lestershire Spool is accurate. That's why it is better, gentlemen. I understand that Lestershires are made to micrometer accuracy. That means better performance because of better construction. I recommend that we put our spooling on a profitable basis by installing Lestershires."

Satisfaction Guaranteed

LESTERSHIRE

TRADE FIBRE SPOOLS MARK

SPOOL & MFG. CO.

146 Baldwin St., Johnson City, N. Y.

Southern Office
519 Johnston Building
Charlotte, N. C.

PROTECT QUALITY WHERE QUALITY BEGINS

The Toledo Cotton Lap Scale protects the quality of the product at the place where quality begins—the weighing of cotton laps in the picker room. This is the first point of production control in the operation of a cotton mill. The Toledo Cotton Lap Scale offers you these valuable, exclusive advantages:

1. Though a hanging scale, and therefore adapted to the efficient handling of laps, *it is made without springs.*
2. It has the Floating Double-Pendulum automatic counterbalance of all Toledo heavy-duty scales, which operates practically without friction and *contains no pivots.*
3. The lever bearings are self-aligning, so as to distribute the load automatically along the full length of the lever pivots. This prevents excessive load on any part of the pivot-knife-edges and protects them against wear.

Toledo Scales especially designed for the quick handling and accurate weighing of cotton laps.

The Toledo Cotton Lap Scale is fundamentally reliable because it contains no springs. It remains constantly dependable even under the severe usage necessary in a cotton mill. It insures the correct quantity of material at all times—and therefore the uniform quality of product. It prevents waste and protects reputation and good-will.

A weight-study will tell you whether the scale you are using is causing hidden losses and affecting quality in your picker room. A Toledo representative will make this study for you without cost. Mail us the coupon.

Sixty-five per cent of our output is sold to Toledo Scale users. There could be no stronger endorsement.

TOLEDO SCALE COMPANY

TOLEDO, OHIO

Canadian Toledo Scale Company, Limited, Windsor, Ont.

CLIP THIS COUPON TO YOUR LETTERHEAD AND MAIL IT TO US.

TOLEDO SCALE COMPANY, Toledo, Ohio

Please send your representative.

Please send information about a scale for_____

NAME _____ ADDRESS _____

CITY _____ STATE _____

Remedies for Curled Cotton.

EDITOR COTTON:

I notice the difficulty that "Contributor No. 3056" has with improperly opened cotton, as reported in the April issue of COTTON. He states he is using 1 1/16-inch Strict Middling, Middling and Strict Low, equal mixtures, all compressed bales. His second vertical openers in tandem run 535 r.p.m. and 375 r.p.m. respectively, and he reports that his cotton curls in the vertical opener, balls up and does not seem to have the fluff and bloom it should. My suggestion would be that he speed up on the apron of his feeder and close the opening so as to feed the cotton in smaller pieces to his vertical openers; raise the speed of his first vertical opener to 700 r.p.m. and his second to 550 r.p.m. and also raise his fan speed so as to draw the cotton through these machines faster, as I believe the curling of this cotton is caused by its being left in the vertical opener too long. He should see that the vertical opener is airtight in order that the air may be drawn from the correct source.

He says his picker fans run 1000 r.p.m. with a beater speed of 800 r.p.m. on both Buckley and 3-blade beaters. My carder is of the opinion that the fan speed should be raised to 1100 turns, and care should be taken that the dampers are properly set. The other settings given in the April letter seem to him to be all right.

H. C. (S. C.)

EDITOR COTTON:

I notice the problem submitted by "Contributor No. 3056" in the April issue; he states that his difficulty is that his cotton is not properly opened when it gets to the cards, that it curls in the vertical opener, comes out in a balled up and twisted, or stringy condition. He gives his opening and picking lay-out in his letter.

It is my opinion that his speeds are almost entirely responsible for this trouble. Vertical openers will curl the cotton worse at a low speed than when running too fast, and you notice that his speeds are very low. (First, 525 r.p.m., and second, 375 r.p.m.) I suggest that he run the first vertical opener from 750 to 800 r.p.m., and the second vertical opener 600 to 650 r.p.m. This should not only practically eliminate the curling of the stock in these machines, but will enable the machines to do more effective opening and cleaning. He said "My blades are set 1-inch from the grid bars in the vertical openers." I suggest also that he set his blades 1-inch from the grid bar at the bottom, giving about 3/4-inch setting at the top, and note carefully the results obtained. The beater speeds he gives for the picker room are all right, and should produce good results; this also applies to the blade beater settings he gives.

I feel perfectly safe in assuming that his trouble is caused entirely in the opening room, unless there is some unusual condition he did not describe. In my opinion, the change in speeds suggested will give him immediate relief.

T. H. (N. C.)

Shepperson Now in New Headquarters.

Shepperson Publishing Co., publishers of books on cotton and its industries, have moved to new offices at 44 Whitehall Street, New York City.

✓ Canvas baskets, ✓ trucks, ✓ and hampers ✓ designed for the textile industry

Rockweave Mills has produced a complete line of canvas containers for the especial requirements of the textile industry. Included are baskets for general conveying or storing of materials, special doff trucks and doff baskets, special steaming baskets with brass eyelets for use in the conditioning room, special roving trucks for the handling of the heavier spools and bobbins from the roving frame.

All are remarkably well constructed for lightness and strength. All are covered with No. 1 Triumph Duck made by Callaway Mills, associated with Rockweave Mills. Accessories, such as casters, handles, hinges, and eyelets are of high quality and are installed to give lasting and satisfying service.

Dimensions and prices will be furnished at your request either by us or our representatives. If unusual sizes or shapes are desired Rockweave Mills can meet your specifications with economy and promptness.

ROCKWEAVE MILLS
Canvas Products Department,
DIVISION OF CALLAWAY MILLS,
LA GRANGE, GA.

Here is
as Smooth and Flexible a Reed
as a Weaver Ever Felt
The reeds are so perfectly spaced and flexible as to have perfect knot space.
There is no cutting of threads, as the wire is specially finished.
The reed is smooth and strong.
It's made to last—to give that unusual satisfaction which is seldom found.
Would You Like to Examine One?
Steel Heddle Mfg. Co.
PHILADELPHIA, PA.
SOUTHERN PLANT
STEEL HEDDLE BLDG. 621 E. Mc BEE AVE.
GREENVILLE, S.C.
NEW ENGLAND OFFICE
44 FRANKLIN ST., PROVIDENCE, R.I.
FOREIGN OFFICES
HUDDERSFIELD, ENG. - SHANGHAI, CHINA

Figure costs carefully and prove this saving
Unusual strength. Concrete that tests well beyond the Building Code requirements. Contractors, each year, are using thousands of tons of
"ENSLEY" & "ALA CITY"
BASIC SLAG
CRUSHED & SCREENED
for that reason—and for this saving. Slag weighs less per cu. yd. (from 300 to 600 lbs. less) than any other concrete aggregate. That means 10% to 25% less weight—10% to 25% less freight. This saving effects your profits. Get it on every job this year!
BIRMINGHAM SLAG CO.
Slag Headquarters for the South
Atlanta BIRMINGHAM Jacksonville
Thomasville Montgomery Ocala Fla.

Answers to "Old-Timer's" Questions.

(*Continued from page* 1037.)

rods. If warps are to end right they must start right.

Now I have a couple of questions which I would like to have "Old Timer" or any other readers, answer.

We are running on 72 x 76, 80 x 80 and 80 x 92, and have the harness cams set 2¾ inches, and the whip roll cams set ¾-inch. I should like to know whether these are best, and if not, what should be used.

Also, will it help to overcome the warp bagging back on heavy pick goods to set a whip roller cam on front center. Will this cause too much strain on the rod?

L. S. C. (S. C.)

Oiling Bolsters on Roving Frames.

EDITOR COTTON:

To please "Old Timer," in response to his urge in the June number, I am telling of my experience on one of his questions; in regard to oiling bolsters on roving frames.

I have a very large card room, and have been on the job four years. The first week I was here I stopped every one from oiling the bolsters, or spindles, as the frame hands call them, and they have not been oiled since, and we do not have any tight or hot spindles. I would be delighted to have "Old Timer," or anyone else, come and look them over and see them run.

However, we do oil the bobbin gears twice weekly, but this is done direct to the bobbin gear and not from the top of the bolster. Once each week we also take a small piece of waste, wet with the oil, and wipe the top or tip end of the spindle when the flyers are off for doffing.

B. L. (ALA.)

What About the Spinning Room?

EDITOR COTTON:

For sometime I have thought of sending a letter to your magazine, and I always enjoy reading it, especially the "Old Timer" page. I have read several real instructive articles from "Old Timer's" pen, and have been expecting to see something from him in regard to the spinning department. In other words, how will the spinning room be operated fifteen years from today unless there comes a halt in letting all of the girls learn to weave or run frames, or doff in the card room?

What is eating on me is the fact that even in doffing or filling batteries in the weave room, they start off making from one to two dollars a week more than they could get after working in the spinning department for six months. "Old Timer" has kept silent on this issue, and I surely would like to know what he thinks of it.

You see, the spinning room has to depend entirely upon family help to run successfully. We cannot depend altogether on the mothers who have children, as most of them are duty-bound to stay at home, yet when the spinner goes down to see the weaver about taking on another weaver, or the carder to see if he might take on another frame hand in order that he might get a spinner or two, he is usually told that, "I can't work what I already have on the payroll," and oftentimes we are sure to find that there are no less than 12 girls in that department who learned the mill in the last 12 months—while we can look out around the

Better Lubrication at *Less Cost* per month

Spotless Goods are the Rule in Mills that use

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES GREAT BRITAIN

MODERN TEXTILE LUBRICANT

Stays IN Bearings—OFF Goods.

Just because it is remarkably adhesive (our exclusive process) NON-FLUID OIL feeds wastelessly to bearings and stays there. Being only pure lubricant it keeps machines running smoothly and reduces wear and tear—

All this at less cost for lubrication than liquid oil—because it lasts so much longer.

Write for testing sample and bulletin, "Lubrication of Textile Machinery."

Lewis W. Thomason, Charlotte, N. C., Southern Agent.

NEW YORK & NEW JERSEY LUBRICANT CO.
MAIN OFFICE: *292 MADISON AVENUE, NEW YORK, N.Y.*
Warehouses:
CHICAGO, ILL. PROVIDENCE, R.I. ATLANTA, GA.
ST. LOUIS, MO. PHILADELPHIA, PA. CHARLOTTE, N.C.
NEW ORLEANS, LA. PITTSBURGH, PA. GREENVILLE, S.C.

Leadership!
Leadership in any line places a direct responsibility upon those who maintain this position. Integrity, strict adherence to highest standards of both merchandising and manufacturing have always characterized the leadership of this company in the Spinning Tape field.
BARBER MANUFACTURING CO.
Charlotte, N. C.
World leaders in the production of spinning and twisting tapes of all kinds of cotton machinery.
BARBER
SPINNING & TWISTING TAPES

ALL STEEL
ECONOMY
FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. C, ANN ARBOR, MICH., U.S.A.

C&D

Introducing
To the Southern Textile Trade

CHEMICAL & DYE CORPORATION

Main Office and Works
SPRINGFIELD, N. J.

Successors to the well known Firms which were established 1915-1917
Tower Manufacturing Co., Inc. (Sulphur Color Dept.) The Chemical Company of America, Inc., New England Aniline Works, Inc.

Manufacturers of

STAPLE and FANCY SULPHUR COLORS
DIRECT COLORS, Fast to Light and Washing
FAST ACID, CHROME, and ALIZARINE COLORS
and
CHEMICAL SPECIALTIES
"Recognized Standards of the Market"

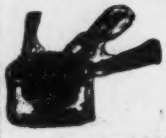
We are also pleased to announce the appointment of
R. T. GRANT, *Southern Representative*
Office
Old Law Bldg., Tryon Street
CHARLOTTE, N. C.

S. ISERMANN, President

Bradley Stencil Machine

The Bradley Stencil Machine makes Stencils in half a minute at reduced cost of 1-10c each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.



Oil Paper, Stencil Paper and Inks. Bradley Ball Stencil Pot uses Liquid Ink for marking and stenciling. Price 60c or $6.00 per doz. Manufacturers of Oil Stencil Papers.

Write for Prices and Samples

A. J. BRADLEY MFG. CO.
99 Beekman Street NEW YORK

CONVEYORS—

COTTON, WOOL
LINT & DUST
Prompt Deliveries

ATLANTA SHEET METAL WKS.
ATLANTA
"SHEET METAL PRODUCTS FOR INDUSTRIAL PLANTS"

barber shop and stores and see several boys loafing and cussing the boss and the mill, having a good time. I hope "Old Timer" will keep his shirt on and tell us poor spinning room fellows what the outcome will be. Personally, I see nothing but the multiple system in the spinning department in a few years.

I know I am in for a good blistering, but facts are facts, so let us have them. I have several rounds of ammunition left and don't mind shooting. M. F. (S. C.)

Package Dyeing in Circulating Machines.

(*Continued from page* 1020.)

the valuable properties of the yarn are lessened.

It is undoubtedly possible so to wind the column package so that it stays soft throughout the dyeing, but unless close attention is paid to the winding considerable variations are liable to occur causing in turn differences in penetration in the dye bath and leading to possible streaks.

When the circulating machine dyer is satisfied that his machinery and winding are suitable for his purpose it is recommended that the quality of the available water supply be examined from the point of view of hardness.

Importance of Water Supply.

It is only to be expected that a dyebath containing oils and maybe a little mild alkali is going to function as an ideal water softening plant, especially when the yarn is present in the machine to act as a ready filter for any precipitate produced. Naturally the extent of the inconvenience caused by hard water is going to depend mainly on the degrees of hardness shown by the water under test and there is reason to believe that a water not showing more than two degrees of hardness represents the upper limit of safety for circulating machine dyeing. Even so, such a water will tend to precipitate out soap or boil off oils and will do its worst work when the machine is operating on vat colors, yet the effect on the dyeing of direct colors does not seem to be so noticeable.

When, however, the hardness rises to four degrees or beyond it will not be possible to ignore the effect on the yarn or on the colors. Still there are probably dyehouses operating quite successfully under such conditions but it does not seem probable that such a water could continuously be used for the dyeing of colors sensitive to lime since the difficulty of keeping the dyeings clean and free from deposit is enormously increased with every extra degree of hardness.

A dyehouse equipped with some type of zeolite softener is very well started on the road to good dyeings, provided that the filter is large enough to carry the load without exceeding its rating.

When such a filter is overloaded it seems to store up objectional impurities and to let them loose out on the dyeing machines at inconvenient times. One sign of being overloaded is rapid fluctuations in the softness of the water coming out of the softener. In such a condition the water might show almost zero softness and yet half an hour later show a test of more than two degrees. The only remedy in such a case, where it is not possible to recharge the filter or install a larger one is to do the important dyeings, liable to be affected by hard water, at times when the filter is newly

A Real Vacation

When swinging the favorite mashie on to the green, or casting with your pet rod by a cool stream, you don't want to think of "shop."

You owe yourself a vacation from production worries this month and every month in the year.

Quartz Quality Silicates are the insurance to a carefree vacation. Specify them for bleaching, boiling off, kier coating, water treatment, sealing.

Philadelphia Quartz Co.
Silicate Headquarters
Philadelphia, Pa.

The New
AMCO HUMIDITY CONTROL
eliminates

1. Water connections to control. 2. Clogging of atomizers or other apparatus which induces the wet bulbs temperature. 3. Wet and dry actuating members. 4. Wet and dry bulb thermometers. 5. Care and attention—controls already installed having had no attention in over a six months period.

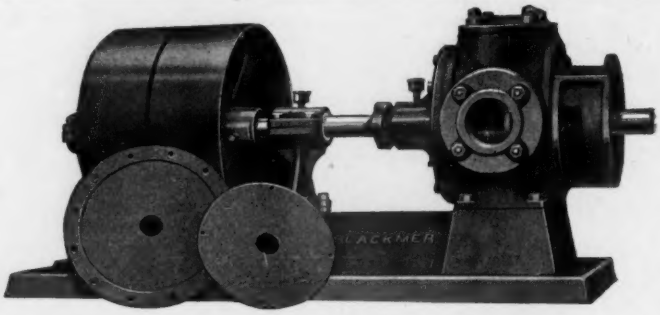
Address your inquiry to
AMERICAN MOISTENING CO.
Humidifying Devices since 1888

Executive Offices
261 West Exchange Street, Providence, R. I.

Sales Offices
Boston, Mass. Atlanta, Ga.
Charlotte, N. C. Greenville, S. C.

QUALITY GUARANTEED
in all our compounds for
Sizing Softening
Weighting Finishing
ARABOL
Soluble Oils, 50%—75% Guaranteed
Boil-off Oil RAYON SIZINGS Hosiery Oil
THE ARABOL MANUFACTURING CO.
110 East 42nd Street ~ New York

"We make this pump the standard for Size"



This is the unsolicited statement of J. E. Harris of the Tallassee Mills, Tallassee, Alabama. The surprising reliability and economical upkeep of their Blackmer Rotary Pumps was convincing.

What other pump possesses these features:

1. Shaft of monel metal—acid resistant.
2. Only five moving parts. Disc and cylinder lining are of acid resistant bronze, which can be replaced without disturbing any pipe connection to the pump.
3. The action of centrifugal force causes the pump to take up its wear automatically.
4. Low speed—long life.
5. Delivers 50 G. P. M. at 430 R. P. M.

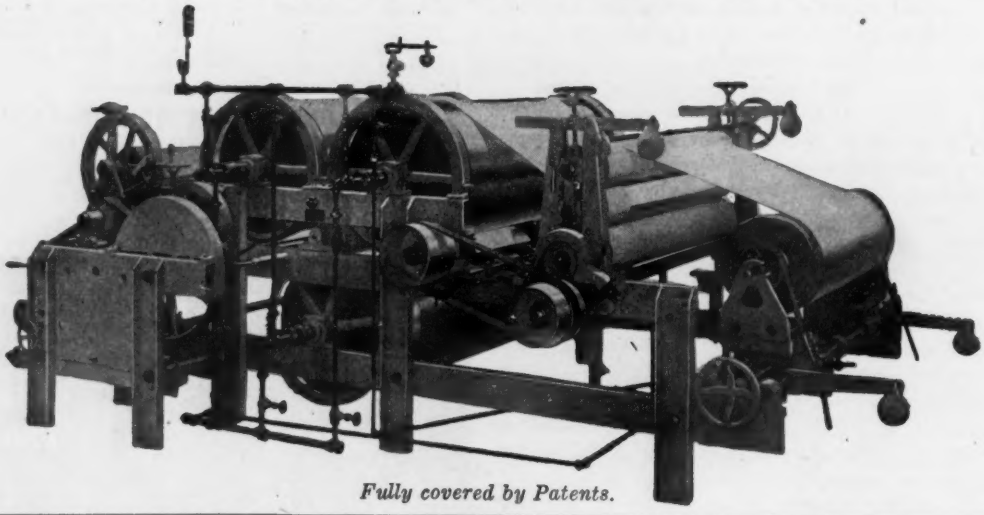
The solution is mostly held in suspension while passing through the pump, consequently there is no beating or churning of the size. The properly sized warp increases production in the weave room.

Our Catalog explains these points in a detailed, comprehensive manner. We will gladly mail it to you.

BLACKMER ROTARY PUMPS

BLACKMER PUMP COMPANY
1809 Century Avenue **Grand Rapids, Mich.**
Offices in Atlanta and 20 other principal cities.

THE JOHNSON WARP-SIZING MACHINE
Used by the Leaders in the Trade for
SIZING RAYON, CELANESE, and SPUN SILK WARPS



Fully covered by Patents.

CHARLES B. JOHNSON ∴ 10 Ramapo Ave. ∴ Paterson, N. J.

British Representative
TEXTILE ACCESSORIES, LIMITED
Manchester, England.

ASK FOR { *Descriptive Circular* / *Demonstration*

Southern Representative
G. G. SLAUGHTER
Charlotte, N. C.

regenerated and thereby not so liable to temperamental displays.

Considerable importance is attached to the purity of the chemicals used in the dyebath. Most dyers still use sulphonated oils for dyeing and such an oil, when it is used, should be made by a process resulting in the smallest quantity of unaltered or neutral oil because such an unaltered oil is not in solution but in suspension and eventually is precipitated on the yarn by the salt used to exhaust the color.

From practical experience there seems to be a distinct gain in quality by using as small a quantity of oils and extra chemicals in the dyebath as possible, since the less the dyebath is crowded with chemicals the less chance of their interacting among themselves and causing dirt to form on the yarn.

Whatever kind of salt is used, whether common or Glauber's, should be tested for cleanliness and also for stability to alkali.

Every once in a while a batch of salt is placed on the market which contains impurities capable of being precipitated by soda ash and such impurities will when introduced in the dyebath tend to carry a part of the oil in the dyebath on to the yarn and so produce a dirty dyeing. The most prevalent impurity is naturally iron and its presence it seems has an undesirable effect on the feel of the yarn.

Money and Monetary Systems.

(*Continued from page* 1018.)

ones mentioned above are instances of the issue of paper money, not for convenience to trade in having a handy form for transportation and use, but to finance government expenditures, and only too often bear no relation to the needs of trade.

Money and Price.

Price is the exchange value of anything measured in money. In the United States and other gold standard countries it is the ratio between any commodity and gold. Thus if wheat is $1 a bushel, it is worth 23.44 grains of pure gold. If wheat should rise to $2 a bushel, it is then worth 46.22 grains of gold. Wheat has gone up but in terms of wheat, gold has gone down. Thus, we say that prices and the value of gold vary *inversely*. We cannot tell by considering only the one commodity whether wheat has really gone up or gold down. It is necessary to make a general comparison in which all important commodities are for the two periods compared. If in the given case it is found that while the price of wheat rose, other prices remained constant or fell, we conclude that gold has not fallen but wheat rose for some reason of supply or demand.

We have been now for a quarter of a century to some degree, and for half that time more noticeably, in a period of rising prices. Not only has the general trend upward been upsetting, but we have had wide fluctuations. We have often seen tables in the papers comparing the purchasing power of the dollar with its power in 1913, 1918 and 1920, for instance. Such comparisons are obtained by a system of averaging the prices of a large number of commodities to make what is called an *index number*. If this index number goes up showing that commodities in general

WASHBURN
NEW BEDFORD.
MASSACHUSETTS.
STRENGTH
WITHOUT WEIGHT
and a NON-LOOSENING HEAD
The New Washburn High Speed Section Beam is just the thing to make high speed warping take on added efficiency. It is built to withstand maximum warping speeds, but at any speed it will wind smoother and steadier.
Stop motion doesn't worry this beam a bit; it is the world's champion lightweight strong beam. The destructive forces set up by excess humidity, or the lack of it, are compensated by the peculiar strut-brace construction of this beam. It is made of bone dry selected cork pine and all the staves are interlocked and braced firmly. It is constructed to stay in perfect balance — permanently. And, of major importance, it is a LOW COST beam. Write for details now.
FOR MORE EFFICIENT SPINNING
WASHBURN WOOD TOP ROLLS.
WASHBURN HI-SPEED
SECTION BEAM

GARLAND
This Trademark
Is a Guarantee of
TRADE MARK
WEAVING AND
WEARING QUALITY
We want every user of our loom harnesses to know how well they weave and how long they wear and for this purpose stamp our trade-mark on the white twine of each harness and label the shaft of each harness with the month in which it is made.
GARLAND MFG. CO.
SACO, MAINE

are going up, we say that money is cheap. Many theories have been advanced for remedying this fault of money. One of the latest is that of Irving Fisher, a prominent economist who suggests a dollar based on *index numbers*. According to his plan we would merely change the gold content of the dollar when the index shows that gold is getting cheaper in proportion to all other commodities. Of course, that would mean that we could coin no gold but as we are a paper using nation, this would be no great change. In that case, we should merely retain the gold in the treasury in the form of bars and issue paper against it.

One of the greatest reasons for a general rise in prices is the increase in the amount of money in circulation beyond the current commercial needs. This may be with gold, as in the United States lately when we have had so much of the gold of the entire world. It is also caused by too much credit money or the various forms of easily transferable paper in circulation. In the United States, for example, we have some government paper not backed by gold reserve. We have national banks notes, Federal reserve notes, Federal reserve bank notes. To them we must add personal checks, drafts, bills of exchange, trade acceptances and all such substitutes for actual coin. Thus we see how easy it is to stretch too much our very elastic monetary system.

One of the greatest aids to business in the monetary line has been the development in highly commercial countries of *credit*. Of these we all understand simple book credit and checks. Simple promissory notes are much used for short time loans and purchases. Bills of exchange are similar checks but apply usually to larger operations and at distances and may be drawn on a merchant etc., as well as a bank.

Relation of Banks to Money and Credit.

"In modern society, the bank is a credit factory and its operation in turn depends on the existence of confidence in business transactions. The issue and circulation of its notes show clearly the confidence of the public in its operations. A bank note is simply a promise to pay based on the resources and credit of a banking institution. In the United States national bank notes are issued with government bonds as a basis, and hence their value is practically assured, and no one hesitates to accept them."

Secondly, the function of the bank as a place of deposit serves to create resources for credit. Savings deposits are loaned by the bank and part of the interest paid the depositor. Checking deposits may be used by the bank for loans up to a certain point since banks have found by experience that only a small per cent of the calls made will be for actual cash but will be largely a matter of transferring credit on the books. Because of the clerical expense, some larger banks are able to require depositors to keep a certain amount—$100 to $300—in the bank for the privilege of using that institution.

A third function of banks is the discounting of notes, bills of exchange and other credit paper. A person holding a note payable in 60 days may want the money at once. By taking it to the bank he can secure the money less the interest on it till payable. This service of banks makes it possible for such credit money to be more acceptable.

The service of banks to the financial system of the country is in itself a large subject and needs a discussion by itself. Because of their semi-public character banks have been subject to a great deal of regulation and legislation. One of the most important laws was the Federal Reserve Act of 1913 by which various banks of the country are tied up into a mutually responsible system so that one can come to the aid of another. This has helped to stabilize credit money and thus help out the whole monetary system.

Group Insurance for Mill Employees.

(*Continued from page* 1010.)

to remain with the mill indefinitely.

A certain concern is so typical of American industry that the conditions prevailing among their employees can be used as a true cross-section of industrial life. For the past seven years they have given their employees the benefits of group life insurance, and have investigated the home and financial conditions of each of their deceased employees. Out of 443 deaths, there are records on 320 cases. Of these 230 cover deaths among average workers. The remaining 90 cover those in the administrative and executive forces. The average net estate of these 230 workers was $1661.14. Of this estate, group life insurance provided $1205.21. In other words, with no group insurance, this average net estate would have been $455.93—a pitifully small sum for the support of an average of two and three-tenths dependents in each case.

It is evident that the average textile worker leaves no other appreciable estate than that created by group life insurance or similar methods. The proof that employees themselves are aware of this situation is the eagerness with which they embrace the opportunity offered by the mill to secure this protection.

New Yarn Developed by Viscose.

The Viscose Company, after years of intensive laboratory research, has developed a new rayon yarn having a subdued luster similar to silk and great softness. Heretofore, the company explains, it has been necessary to delusterize rayon after manufacture. In the new product, the desired degree of luster is manufactured into the yarn, thereby insuring permanency of the original luster as well as the originality of appearance. This new yarn, called Dulesco 24, is said by the manufacturers to be a "true revelation in rayon yarn, particularly where subdued luster and softness are essential."

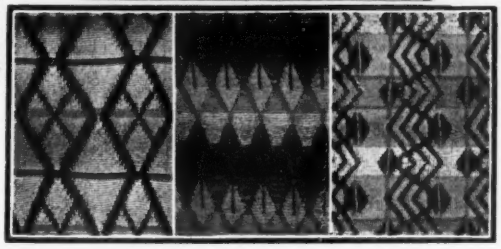
Carrier Engineering Corp. Acquires New Building.

Carrier Engineering Corp., specialists in air conditioning, drying, processing and refrigeration, have announced the purchase of a four-story factory and office building at 850 Frelinghuysen Ave., Newark, N. J., a short distance from the present plant at 750 Frelinghuysen Ave. The new quarters were formerly occupied by the Edison Lamp Works Division, General Electric Co.

An Instructive Booklet on Rayon.

The Daly Rayon Service, 44 East 23rd St., New York City, has published "Daly's Rayon Primer", by Carroll G. C. Daly, the price of which is 25 cents per copy. The booklet is an excellent treatise on rayon, embodying a descriptive history of the fiber, explaining in detail the various manufacturing processes and correct methods of handling in textile plants; also giving important rayon conversion tables.

A good foundation for Fancy Effects



BUILD the demand for your Fancies upon that best of all foundations — the Spiral Floating Striping Machine.

As to variety of work, it is several machines in one. It makes Misses' and Boys' fancy effects. Patterns confined heretofore to hand or semi-automatic machines are identically duplicated. A stocking can be finished off with plain fabric and the cuff top made in a fancy pattern.

Yarn changing fingers up to six permit of a great variety of colors under the control of the pattern mechanism. The horizontal striping mechanism can be arranged to control either the facing yarn or the backing yarn.

A final advantage— attachments for producing the fancy effects can be easily thrown out of action and plain stockings produced, as with any HH, K or B machine.

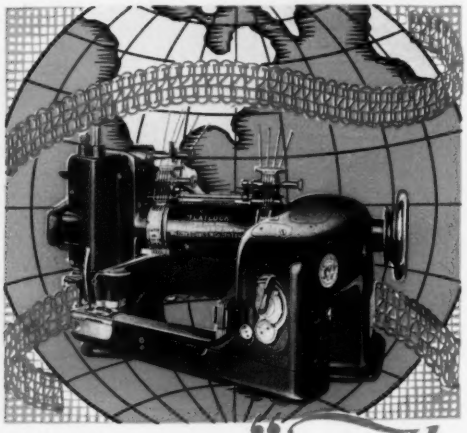
Established 1865

SCOTT & WILLIAMS

Incorporated

366 Broadway New York, N. Y.

The FLATLOCK MAKES



"The seam that circles the globe"

RAYON'S popularity knows no geographical boundaries. Women's appreciation of fine finish is equally world wide. The two are inseparable. Users of the Flatlock experience no difficulty in securing an appropriate finish. It is ideal for the purpose. For the seam made by the Flatlock preserves . . . even enhances, the delicacy and charm of Rayon. The superiority of the Flatlock Seam has also resulted in its almost universal adoption for men's rayon underwear.

RAYON Undergarments may now be equipped with Elastic Webbing that is washable and durable. The success of this newest development depends upon the Flatlock Seam.

If you are not already employing the Flatlock Seam it is to your advantage to investigate its possibilities. Manufacturers in Rayon the world over are profiting by its use.

Write our Home Office for samples made on the Flatlock, or submit your own fabrics for sample purposes.

WILLCOX & GIBBS SEWING MACHINE CO.

HOME OFFICE: 658 Broadway, New York, N. Y., U. S. A.

Baltimore, Md. 321 N. Howard St. | Boston, Mass. 111 Summer St. | Cincinnati, Ohio 206 West 7th St. | Chicago, Ill. 506 S. Wells St. | Cleveland, Ohio 23 The Arcade | Los Angeles, Cal. 839 Maple Ave. | Minneapolis, Minn. 118 South 8th St. | Newark, N. J. 13 Halsey St. | Philadelphia, Pa. 131 S. 12th St.

San Francisco, Cal. 49 Fourth St. | St. Louis, Mo. 1019 Locust St.

Canadian Representative: W. J. WESTAWAY Co. Ltd., Hamilton and Montreal, Can.

"Casa Cuba" de H. WIGHTMAN, San Juan de Dios No. 4, Havana, Cuba

PARRISH & Co., Apartado, No. 6, Barranquilla, Colombia

Troy, N. Y. Fulton & 4th Sts. | Washington, D. C. 702 10th St., N. W.

JOHN C. LONG & Co. Rua Candelaria No. 81 Rio de Janeiro, Brazil

J. M. DE LA PENA Balderas 130-A, Mexico, D. F.

WILLCOX & GIBBS SEWING MACHINE CO., LTD., 20 Fore Street, London, E. C. 2, England
Nottingham Leicester | Luton | Birmingham | Manchester | Leeds | Glasgow Belfast
PARIS | BRUSSELS | MILAN

LOS FABRICANTES UNIDOS, INC. 964-972 Calle Belgrano Buenos Aires, Rep. Argentina

PARRISH ELLIS & Co. Apartado No. 36, Caracas, Venezuela

SOLE UNITED STATES AND CANADIAN AGENTS FOR CORNELY AND UNIART EMBROIDERY MACHINES

Training Hosiery Dyehouse Operatives

The First of a Series Discussing the Induction of New Workers and Their Instruction in Various Phases of Operations

By Charles B. Ordway

Part One.

THE thorough training of labor for operatives in the dyeing, bleaching and processing of hosiery is one of the greatest problems of the younger generation of textile chemists, superintendents of bleaching and dyeing, etc., in the rapidly developing textile industry of the South. They have a "willing-to-learn", unskilled type of labor that is usually from the rural sections.

If the head dyer or chemist is aided by a trained assistant who is both a practical dyer as well as being technically trained, he is fortunate indeed, for the head dyer can then devote himself to the training of new men for the laboratory and attend to the matching of shades, testing of chemicals, dyestuffs, oils, etc.; while his assistant can instruct the operatives concerning the intricacies and necessities of correct temperature control for the dyeing and bleaching machinery, and its operation.

There should be an experienced "key man" who can always be depended upon to give assistance and pointers to the less experienced workers; this key man cannot be classed as a foreman, except where he has actual direction of a certain number of machines, or a department, such as hydro-extracting. A key man is valued mainly for his reliability and punctuality, he is one who can take over in an emergency any type of work and *follow out instructions*.

In certain departments, the key man must be well-trained technically in the laboratory, and be eager and willing to seek out solutions of trouble that arise in the dyeing and bleaching, and make a constant study of new types of oils, processes, dyestuffs, rayons, etc.

This series will show the relation of the various branches of hosiery dyeing and bleaching, and methods of training the key men and operatives so that the production of the mill may be kept at a maximum rate both in quality and quantity of finished product. In this outline the various branches are placed in the order of their economic importance to a well-organized hosiery dyehouse and bleachery. The writer will endeavor to follow this outline in covering such points as he feels are valuable in training operatives for each branch and for the entire dyehouse and bleachery as a whole. This outline is shown in the box in the center of this page.

OUTLINE OF SERIES.

1. LABORATORY.
   - A. Fool-proof methods for arriving at formulae.
   - B. Equipment necessary; dependent upon size of mill.
   - C. Testing new dyestuffs, chemicals, oils, etc.
   - D. Testing new processes for dyeing, bleaching, etc.
2. RECORDS OF FORMULAE, PROCESSES AND EXPERIMENTS.
   - A. Two sets should be kept; office and dyehouse.
3. WEIGHING-UP ROOM FOR DYESTUFFS, ETC.
   - A. Accurate scales; large and small sizes; care and operation.
   - B. Trucks for handling barrels of dyes, oils, etc.
   - C. Automatic devices used to prevent accidents; carboys, supports and handlers.
   - D. Standardized methods of preparation for dyestuffs, chemicals, oils, etc.
4. DYEING EQUIPMENT.
   - A. Rotary and paddle.
   - B. Care and repairing of machinery.
   - C. Operation.
5. BLEACHING EQUIPMENT.
   - A. Chlorine.
   - B. Peroxide.
6. HYDRO-EXTRACTING.
   - A. Type used, care and operation.
   - B. Fibers being extracted, time required.
   - C. Keeping extractors cleaned.
7. SEMI-DRYER.
   - A. Machine or open tables.
   - B. Types of fibers requiring this work.
8. WATER SOFTENERS.
   - A. Operation and care.
   - B. Necessity of records being kept accurately. (Rainy season; dry season.)
9. CENTRAL STORAGE ROOM.
   - A. Arrangement of chemicals, oils, dyestuffs, etc.
   - B. Freedom from heat, moisture, etc.
10. SHADING MATCH ROOM.
    - A. Artificial light.
    - B. Correct location as to light.
    - C. Convenience to dyehouse, laboratory.
    - D. Place and shelves for shades.

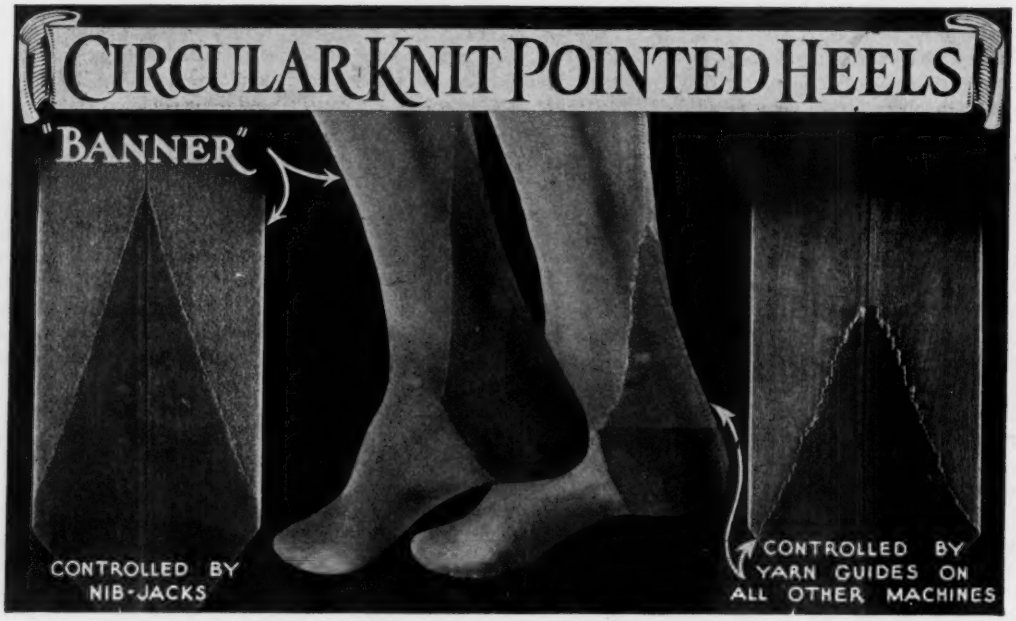
The Laboratory.

The laboratory, properly managed and equipped, is the keystone of a dyehouse and bleachery now-a-days. As for equipment, one must have sufficient glass rods, beakers, thermometers, graduates, one or more balances, small yarn scales, water heater, hot water and glycerine bath, chemicals can be supplied from dyehouse, a sufficient number of tables and benches for carrying on operations. To have a fully-equipped laboratory, with a poorly arranged method of training for the laboratory workers, is a bad mixture.

On these points, the writer will express his views of the most feasible methods for training operatives in the laboratory; whereby they can grasp the practical and technical viewpoint of the processes in hosiery dyeing and bleaching.

When a "green" operative begins, one who has had a fair technical training can then be shown the routine manipulations of the various dyeing operations on the yarn scales, balances, etc., and grasp these points probably quicker than the less fortunate who are not so trained. He can be placed with an experienced operative, and by a strict observation, learn the various points in the manipulation of skein dyeing, the proper amount of dye-liquor necessary for 1-10, 1-20 and 1-40 dyebath; how to make hosiery and yarn swatches for dyeing.

After this period of general observation, the new man who can manipulate or run a set of skein dyeing pots, can thus start making preliminary matches with straight colors on cotton hosiery yarns. In this dyeing, he should not be burdened with the whys and where-



Are you absolutely assured of perfectly tapered reinforced pointed Heels, with your present equipment?

There is no assurance of perfect work unless there is positive control of each needle.

The "BANNER" Nib-Jack Pointed Heel machine is the only circular knit machine that absolutely controls each needle independently. By their use you are absolutely free from any infringement, confident of better work, less seconds, greater production and more profits.

A glance at the above illustration will show you the marked contrast between the Pointed Heels made on "BANNER" Nib-Jack machines and those of all other makes using other methods.

HEMPHILL COMPANY

MAIN OFFICE AND FACTORY

PAWTUCKET RHODE ISLAND

New York Sales and Show Rooms
93 Worth Street, New York

Southern Office
James Bldg., Chattanooga, Tenn.

Philadelphia Sales and Show Rooms
Colonial Trust Bldg., 13th and Market Sts.

fores of different textile oils, soaps, chemicals, dyestuffs, and all dyeing should be on straight colors in their different percentages.

After running on the cotton hosiery for a few weeks, the new operative can then run similar dyeings on small swatches of rayon, three-fiber hosiery silk tubing and cotton hosiery, using direct, neutral, and acid dyeing silk colors. These dyeings on straight colors will give the initiate an idea of the variation in shades produced by one dyestuff on rayon, silk, cotton and wool in the same dye bath.

Learning the Effect of Dyes.

By noticing the various percentage dyeings, he can see that yellows and oranges will vary from green in light shades to redder, and vice versa, pinks, scarlets and reds will go bluer or yellow in ranging percentages. Blues, blacks and greens have the range of red, yellow and bluish-violet; while violets have the bluish, reddish and yellow tones in their percentage dyeing.

The new operative's next task is the proper processing or preparation of rayons, silk and mercerized cotton types of hosiery for dyeing or bleaching through the use of the various oils, soaps and bleaching agents; the degumming of silk, scouring of rayon and cotton, in order that the dyestuffs are permitted their full power for penetration and level dyeing.

The knowledge of "knowing when" silk is properly degummed is of vital importance, as there has been many a poor "match" on machine dyeing caused by carelessness in matching a shade on a half-degummed piece of silk hosiery in the laboratory. A half-scoured rayon hose that has been treated with neat's-foot oil or a mineral oil mixture in the preliminary winding stage, will give streaked dyeings on a dirty bleach quite often.

In this case it is best that all rayon, pure silk and three-fiber hosiery be degummed and boiled out in a small experimental dyeing machine of similar design as that used in the regular dyeing and bleaching.

Matching Colors.

The beginner has now secured the fundamental knowledge of manipulation of the various dyeing equipment, dyestuffs and hosiery to start matching colors on cotton hosiery. He should be given simple blues, yellows, or as much of the primary colors as possible, so that he can act on his own initiative in choosing dyestuffs suitable for these colors to be matched. The dyer or chemist can write out a number of formulae for the first few shades, then allow him to follow up formulae and trials until he has reached a point where he must be assisted in arriving at the proper change to make in the formulae for the shades desired. This will give him confidence and he can, in the matching of similar shades on mercerized cotton, always note that a great many of the cheaper azo colors sometimes will jump on the mercerized cotton in a salt bath, and that added precautions must be taken to secure level dyeing in colors and combination shades.

Going from mercerized cotton, he can repeat this operation on cotton-and-rayon hosiery and half-silk goods. Three-fiber hosiery should be the last work for the initiate, and he should learn the behavior of the three-fiber hosiery both in the machine and in the small laboratory dyeings. On any one fiber or cotton-and-rayon, the shades usually can be matched successfully, using three dyestuffs, while on matching three-fiber, it is usually best to use four to six colors in a formula.

The style of hosiery and the type of rayon are the deciding factors in the desirability of using silk white or union dyeing dyestuffs. "Silk white" direct colors are considered a good combination with neutral dyeing silk colors on silk hosiery, while the latter types are found more suitable for three-fiber hosiery, with a small addition of neutral dyeing silk colors.

Now that the initiate has received a general idea of the various operations and processes, he should be shown the advantage of slow and fast exhausting dyestuffs, when and where to use them; the addition of oils, soaps and various penetrating agents to the dyebath.

The writer believes, from technical and practical experience, that there are many of these products which are

SHADE French Nude - Mercerized Cotton	WT OF GOODS IN MACHINE 100 POUNDS
.04% Solantine Black L	280 gr.
.12% Diamine Fast Orange EK	840 gr.
.01% Pontamine Fast Red 8BL	70 gr.
1% Oil or Soap	1 lb.
5% Glauber's	5 lbs.

FIG. 1

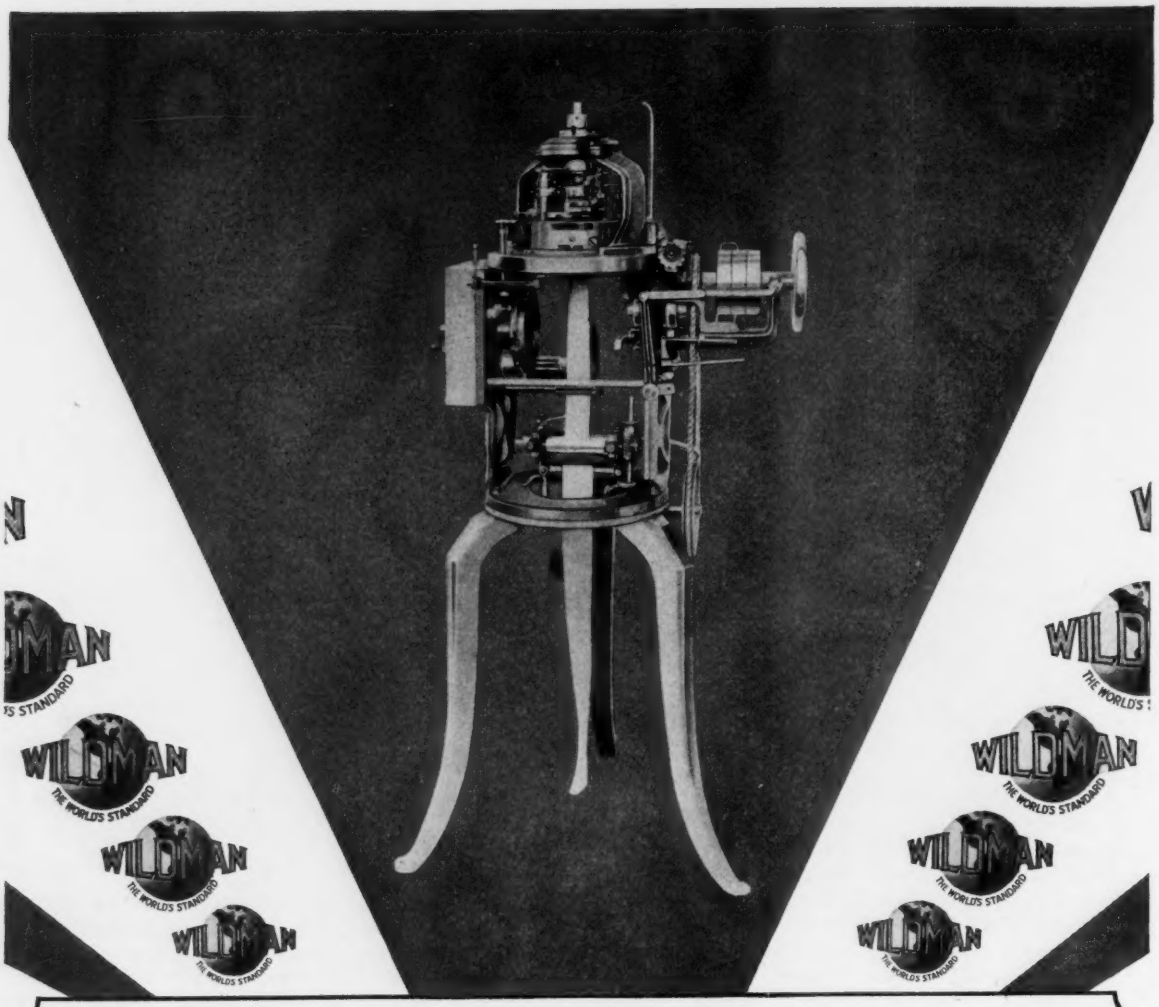
used needlessly, especially in hosiery dyeing; that the solution to this problem of level dyeing and penetration is to keep one man in the laboratory to check upon all incoming shipments of dyes, test out new colors for the special lists of tests as follows: Solubility, leveling, penetration and boiling off at the boil and remaining on at the boil. Then whenever a formula gives trouble the troublesome dyestuff can be located and used only on heavy shades from then on; re-matching the fool-proof dyestuffs regardless of price as a good working formula quickly pays for itself by reducing re-dyes and saves dyeing time.

Calculating Formulae.

Now for the general system to be used in calculating formulae. I prefer the straight percentage chart that a great many dyestuffs corporations furnish gratis if requested. It is the most reliable system. The formula card shown in Fig. 1 will demonstrate the superiority of this method.

The straight percentage method prevents mistakes usually caused by using ounces, pounds, and percentage all mixed up in some formulae: when by glancing at the dyer's chart previously mentioned, the stated amount of dyestuffs, in ounces, grains and pounds is shown for the given amount of hosiery to be dyed. Additions to or reductions in the formula can be arrived at with ease and exactness.

The use of oils and soaps is always best in the laboratory work. This can be shown the beginner as it permits of level dyeing results and combinations, and he can note all poor penetration and unlevelness in dyeing. Notes should be made for future work. This careful noting of



Wildman Machinery itself will solve most of your major knitting problems.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
CIRCULAR RIBBER

troublesome combinations and processes in the laboratory enables one to locate the money-losing factors in the dyehouse and replace them with good working combinations.

These notes made in the laboratory will enable the dyer to prevent re-dyes by properly locating the trouble and avoiding the use of these colors in the future.

The shade matcher, in arriving at a shade, should try to secure as nearly as possible, a match with a straight color, then by using a small percentage of shading color, the proper tone is secured. This will be of greater advantage than by using these colors 33 per cent, 33 per cent, 33 per cent, as these colors will not as a rule possess uniform exhaustion and dyeing affinity in the laboratory that they show in machine dyeing. Then a 90 per cent, 8 per cent, 2 per cent color combination is usually more satisfactory from a laboratory match to a machine dyeing.

Testing Dyestuffs, Oils, etc.

The testing of various dyestuffs in an acid or alkaline bath with and without soaps, oils, and penetrating agents, on various fibers used in hosiery is important, and a tabulation of this information on a card of the kind shown in Fig. 2 should be filed away for reference.

SHOWING GENERAL PROPERTIES OF DYESTUFF TESTED

DYESTUFF - TYPE - (DIRECT, NEUTRAL DYEING OR ACID)

FIBER TESTED - Rayon, Mere. Cotton, Etc.

HOW AFFECTED BY FOLLOWING	DYEING MADE AT 140°	180°	212°
ACETIC ACID			
SODA ASH			
TRI-SODIUM PHOSPHATE			
SODIUM SILICA ALUMINATE			
SILK DEGUMMING OIL			
SULPHONATED CASTOR OIL			
SULPHONATED OLIVE OIL			
NEUTRAL OLIVE SOAP			
REGULAR TYPE DYEING			

HOW AFFECTED BY

BRASS: Red Deller

MONEL METAL: —

IRON: —

CROSS-DYEING Fair

Compare with regular method of dyeing as to change in shade, levelness, exhausting and ability to stay on at boil. Then in dye bath or being added to dye-bath

STAINS, SILK, COTTON, RAYON, - Silk White

DISCHARGED BY HYDROSULPHITE Good

DISCHARGED BY TITANOUS CHLORIDE: Fair

FIG. 2

Testing Out New Processes.

The beginner can be shown the second step in the process after the shade is matched in the laboratory dyepots, by running a small one to five pound experimental dyeing machine which duplicates the large size equipment in the dyehouse. At this point the beginner will really begin "to see light", and realize just what he has gone over and what he should endeavor to study out for himself. He can gain first-hand information on what colors are valuable for shading a lot of silk, rayon or cotton hosiery in the dyebath at 180-200 degrees Fahrenheit; just how this addition should be made to go on level and not streak the hosiery; the correct temperature and regulation of it to insure level dyeing and penetration. After he has matched the shade in the small machine, he can be shown how the formula should be corrected for additions made. He can be shown the re-working of an off-shade lot, by calculating the amount of dyestuff that will remain on fiber and the per cent of formulae needed to be added to the dyebath.

In the opinion of some readers, the writer may be carrying the laboratory worker too fast, but he should be given as much of the practical and technical as possible. For then he will realize the value of temperature control, duration of dyeing period, thorough degumming and scouring processes; the use of exact amounts of chemicals, oils, dyestuffs, etc. If the laboratory work is to be duplicated on machines, it is best to have a regular laboratory worker test each lot of rayon, cotton, silk and wool against standard bleach and dyestuffs, similar to the testing of the dyestuff.

This can be carried on in simple tests, only the simplest are best. A number of practical tests are helpful in this line, as a dyestuff may be equal in shade, but when added to a dyebath at 170 degrees F. or more will streak while the standard is okeh. This denotes poor solubility or inferior levelness in dyeing. While some colors will boil off at 180 degrees F. or over, and the bath must be lowered in temperature to enable the dyestuff to go back on the fiber. The penetration in the heel and toe is quite a point that should be tested out. These suggestions may sound theoretical and impractical to some readers, but when proper tests have been worked out they will keep many a batch of re-dyes out of the dyehouse.

[In the second article, to appear in an early issue, Mr. Ordway will continue the discussion of the outline appearing on page 1071. Later articles will complete the discussion of this outline.—The Editor.]

Additional Knitting Mill Notes.

Greensboro Full-Fashioned Hosiery Mills, Greensboro, N. C., will install a number of Reading 24-section 45-gauge machines, double capacity.

It is reported that the Adams-Millis Corp., High Point, N. C., will build a full-fashioned hosiery mill and equip it with eight full-fashioned knitting machines.

May Hosiery Mills, Inc., Burlington, N. C., has let contract for a plant addition which will house its full-fashioned hosiery machines. J. E. Sirrine & Co., Greenville, S. C., are the engineers.

Belmont Hosiery Mills, Inc., Belmont, N. C., capital $150,000, establish a textile mill with a capacity of 1,000 dozen pairs of men's fancy hose daily; work to begin immediately.

It is reported that machinery is being placed for a new full-fashioned hosiery mill in the building formerly occupied by the Rose Furniture Co., High Point, N. C.

New Newport Colors.

The Newport Chemical Works, Inc., Passaic, N. J., recently placed on the market Anthrene Orange RC Paste, which is claimed to be extremely fast to light. Described as unaffected by metals, it is well suited to machine dyeing, and though not recommended for silk, it is said to be excellent for rayon. Newport also recently announced a vat brown to be known as Anthrene Brown RA. The type is known, according to the announcement, for its great fastness to light, which makes it useful for materials to be used for draperies, upholstery fabrics, and the like. It can be used for dyeing cotton, silk and rayon.

True Ribbed Multi-Design Hose

Color Is Here...And Here to Stay!

They're beginning to use colored garden hose to water the lawns . . . colored percolators to make coffee . . . colored pans to cook with . . . You can be sure that the vogue of color in true rib tops will grow and grow and grow . . . Multi-Design gives you a scope in designing of 90 colors Vertical and 4 Horizontal.

THE FIDELITY UNIVERSAL RIBBER

FIDELITY MACHINE COMPANY
3908-18 Frankford Ave., Philadelphia, Pa.

79 Worth Street, NEW YORK CITY

James Building CHATTANOOGA, TENN.

Interesting history of the Knitting Arts, including the newest developments — fully illustrated—mailed free upon your request.

Some Developments in Knitted Fabrics

Rayon Popular in Britain as Well as in America; Special Designs for Knitted Trimmings; Demand for Dress Goods Increases

By William Davis, M. A.

The knitting industry is undergoing steady development and change as regards the fabrics being offered to the textile markets and manufacturers who fail to interpret those demands are certain to be left behind in the quest for a trade which becomes ever more keen. In those changes it can be said that the fundamental types of knitted fabric remain more or less stationary and unchanged, but all the time subtle modifications occur in their applications. Fig. 1 gives a view of a fabric used extensively for trimmings and made on the circular knitting machines using the loop wheel which is a type known the world over. The machine is known generally as the loop-wheel frame, but also as the "fleecy back" machine after a variety of texture where a thicker yarn is placed on the back and afterwards fleeced or raised on the teasles to give a fuller and softer feel to the fabric.

Now this thicker yarn cannot be accommodated on the ordinary type of machine but the loop-wheel frame has spring needles arranged vertically, where a needle can be

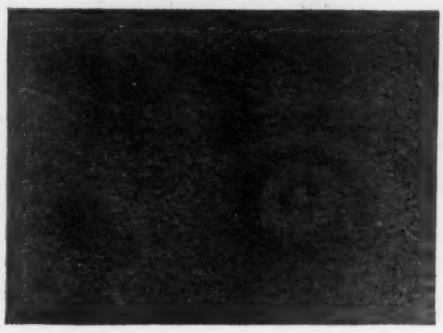


Fig. 1. A double fabric with fleece or raised back.

pushed back slightly at every sixth stitch or so causing the thick yarn to be knitted only at those stitches; for the rest of the time the thicker yarn remains floating on the back and presents a smooth surface to the cloth which lends itself admirably to the raising process. This system has been used along with rayon on the face and cotton single yarn on the back which is raised into the fleecy backed fabric. The rayon material can now be obtained at a low price which makes little difference to the resultant cost as compared with cotton. The fabric is lustrous and smart-looking and has given a new lease of life to the cheaper grades of fabric in this category.

Figure 2 gives a curl astrachan fabric which is produced by an extension of the principle just referred to. There are the face yarn and the back yarn but a third thread is introduced termed the binder, the function of which is to link the face and the back materials to bind the two elements together. In this case there is a cheap ground of strong cotton working on all the needles, but the binder is only made to intersect the needles at more or less regular intervals. The outstanding feature of this curl fabric, of course, is the thick mohair yarn which displays itself on the surface of the fabric. This is usually in the region of 4s worsted counts or even thicker and at this thickness it is out of the question for the yarn to intersect on the needles of the machine. It floats on the surface of the ground fabric but the selective mechanism makes it possible for the binder to wrap round the thick mohair thread and also with the ground, thus connecting it up in the desired manner.

The advent of rayon to such a popular extent has given

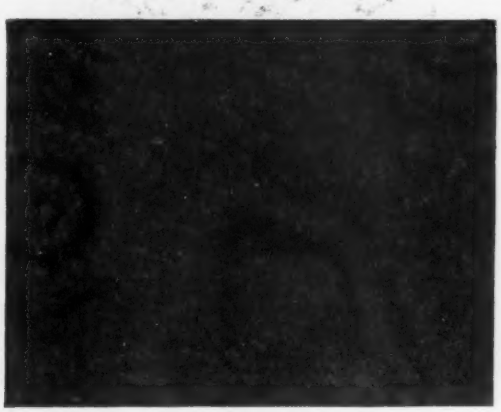


Fig. 2. Cure astrachan fabric. A fabric for trimming purposes, made with three yarns.

this branch of the knitting industry new impetus and direction. The mohair fiber is derived from the Angora goat of Asia minor but is now being cultivated in different parts of the world with success. It is for the most part thick in fiber, but the South American farmers have done something towards placing finer qualities on the market under the term of mohair kid material which is softer and has a pleasing luster. This variety only goes part of the way towards the adaptation of mohair for finer gauges and the rest of the distance is being covered by the rayon product and knitted fabrics which were formerly considered the monopoly of lustrous curly mohair are now being developed in new and wonderful directions with the use of rayon which can now be obtained in a fineness of denier equal to the product of the silkworm.

Mohair curl fabrics are restricted of necessity to the coarser gauges and produce trimmings, as in Fig. 2, which are reminiscent of Russia and can only be worn in cold climates. The curl effects in rayon however have now been considerably refined in their scope and the market at the present time is absorbing considerable quantities of such goods for the ladies' dress goods trade. The finer material

has also simplified greatly, the methods of production for the elaborate binder thread is now no longer required as the finer yarn of rayon can be accommodated on the needles of the machine side by side with the ground yarn. This is a great advantage and gives a fabric in every way more composite in structure. The build of the fabric is quite simple, there is a ground thread which can be in cotton or rayon or even wool alongside of the rayon yarn which is of approximately the same thickness or diameter. The two yarns are fed into the machine side by side, the ground yarn is sunk slightly to form an ordinary loop, while the rayon thread is taken by a sinker having a groove which is less deep than the other so that it thrusts a longer length of loop. This extra length of stitch forms on the surface as a kind of pile which curves itself gracefully in the fabric and imparts an elegant appearance.

The curving of the stitch also gives a special quality to the reflection of light in the cloth and yields a varying

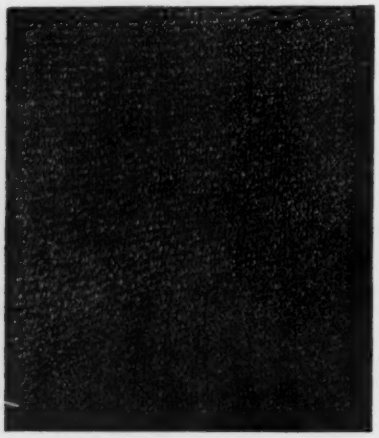


Fig. 3. Plush knitted fabric from rayon yarn.

luster according to the angle from which it is observed. When it is stated that a common gauge for such fabrics is a machine having 20 stitches per inch or finer it will be seen that a new field of enterprise is opened up by the display of fine denier rayon. With a cotton ground these together give a fabric very moderate in price. Fig. 3 gives a fabric which is worked out on the principle mentioned with the ground in cotton and the pile on the surface raised by means of the special ribs which sink a deeper loop as compared with the ground so that the extra length of yarn curls on the surface. This particular example is piece-dyed all the same color, but very effective patterns are made with the back thread in one color and the pile thread in contrasting color, so that the ground shade shines through in a measure on the face and gives rise to a kind of two-color effect which is made the foundation of very attractive patterns, particularly for the ladies' dress trade where this double color melange can be played up to with borders of trimmings, pockets and sleeve bands.

Figure 4 gives a further development on this style of pattern where the textile printing machine is adapted for printing designs onto the fabrics thus produced on the knitting machine. These styles are effective on woven goods where they have been for long successfully practised, but this pattern shows that printing can be employed for the knitted stitch quite successfully, indeed the varying angle of light reflection on the plain knitted fabric affords a very attractive means of giving effect to all printed patterns. The depth of the pile renders the printed effects more deep and solid in effect, so that the ordinary observer may at first think that they are interwoven or knitted, an impression which the agent is not at special pains to dispel.

In Fig. 4 the ground color is lavender or grey and the printed effects are introduced on to the ground as spots of dark blue with more numerous pinheads of red as a ground. Now Fig. 5 shows a type of knitted design in rayon which has had a very long run of popularity on the market but which appears to have rather spent itself as the demand seems to be taking quite a different direction. It is produced on a machine having about 12 needles per inch and on a circular fabric type with about 8 feeds. The ground is white rayon but the pattern is produced by means of a design wheel set into the circumference, so that certain needles as shown are made to hold their stitches for

Fig. 4. A plush knit effect carrying printed spots in blue.

two courses, so that the loops are drawn out to double length. They show small openings in the fabric alongside of these lengthened stitches which give a larger body of light reflection.

This design will be noted to run at a steep angle towards the left and no repeat of the figure shows in exactly the same position of the fabric nor occurs on the identical courses of the cloth. In some respects this is an advantage as it gives the figure fluency and variety with a very simple design wheel arrangement, as this moving of position of the succeeding motives takes place automatically with the revolution of the needles. It is, however, regarded as a disadvantage, particularly in color designs where the sliding form of the design catches the eye much more prominently and often gives the garment a lop-sided appearance, in particular it is difficult to cut the garment satisfactorily. There can be no doubt that there is a revulsion of feeling in regard to those sloping designs and great activity is being shown among the machine builders to give straight designs or at least designs larger in form where the sloping impression will be destroyed.

There has been a gradual increase in the scope of the design wheel which is now in some types of machines about half as large as a machine cylinder itself. These patterns have been largely employed for ladies' dress fabrics, and

A FRANKLIN PACKAGE
OF DYED YARN

It will deliver freely, either by rotation or over end, substantially lowering winding costs.

PLANTS
PROVIDENCE
PHILADELPHIA
DENTON, ENG.
New York Office, 66 Leonard St.
Chicago Office, 222 W. Adams St.
SOUTHERN FRANKLIN
PROCESS COMPANY
Greenville, S. C.
CENTRAL FRANKLIN
PROCESS COMPANY
Chattanooga, Tenn.
FRANKLIN RAYON
DYEING COMPANY
Providence, R. I.

COLOR-*the* master salesman

Colors of daring brilliance—colors of subdued and quiet harmony—all accentuated by the lustrous sheen of rayon—do you wonder that there has been created so strong a demand for rayon alpacas? Since the very inception of this new fabric, Noveltex, Inc. has been unusually successful in developing fast-selling stylings in their line of "Noveltex" Rayon Alpacas. Color is the dominant factor of these designs, combining delicate tint backgrounds and rich decorative effects.

The Franklin Process Company has co-operated with Noveltex, Inc. in the production of these noteworthy colorings. From the very start of each design we have advised concerning the possibilities and limitations, harmony, and contrast of new colors. We have matched shades and developed new shades in our laboratory, and have sometimes suggested changes that improved the fabric. Back of all this service we have performed our real work of making consistently good deliveries of dyed yarn to make sure that the new stylings reached the market at the earliest possible date.

The success of this user of Franklin Process Colored Yarns is typical of the experience of hundreds of our customers who create and produce yarn-dyed fabrics.

Are your sales of yarn-dyed fabrics satisfactory? Why not let us give you the facts on what we have done for others? This is very likely to suggest profitable opportunities for you. Write us at Providence; your inquiry puts you under no obligation whatever.

FRANKLIN PROCESS COMPANY

Largest Job Dyers of Yarn in America
also Yarn Spinners, Manufacturers Glazed Yarns, Dyeing Machines

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

Ad No. 229-A. Printed in U. S. A.

FIBRE SILK FILLING

Working into practically all classes of textiles, fibre silk has firmly established itself in the weaving industry.

Starting in the nature of a specialty, the introduction of fibre silk, particularly as filling, has spread to such an extent that a large number of automatic and plain looms formerly using cotton filling are now weaving goods with fibre silk filling.

The problem of supplying these looms (primarily fitted for cotton filling) with properly wound fibre silk filling on bobbins of many sizes and forms, for both automatic and plain looms, became very serious.

Weaving mills cannot contemplate shipping their empty bobbins to the producers to be filled, and the manufacturers of fibre silk cannot be prepared to wind economically on the great variety of bobbins in use. In addition, as most weaving of this nature calls for bobbins with a bunch of fibre silk to be placed at the start of the winding at a proper location to function with the loom feeler motion, the filling winders must be equipped with bunch-builder attachments.

The satisfactory solution of this problem is in weaving mills buying their fibre silk filling in skeins from the producers, installing ***Universal No. 90 Winders,*** with proper bunch-builder attachments, and winding their fibre silk filling direct from skein to bobbin, to meet the mill's individual loom requirements.

UNIVERSAL WINDING COMPANY

PROVIDENCE
CHICAGO, UTICA BOSTON PHILADELPHIA CHARLOTTE
NEW YORK MONTREAL AND HAMILTON, CANADA ATLANTA
DEPOTS *and* OFFICES *at* MANCHESTER *and* PARIS

UNIVERSAL WINDERS

Ad No. 21. Printed in U. S. A.

the wide designs have not always been made continuous throughout the skirt or the coat but may only appear intermittently at the border or in the center with the rest of the garment in plain ground. In this way relief has been obtained from an inevitable tendency to overload the design element which would result from undiluted employment of such enormous figures. This has given an impetus to the sale of skirt or dress lengths of such fabrics where the fancy border is sold in a complete length with a suitable

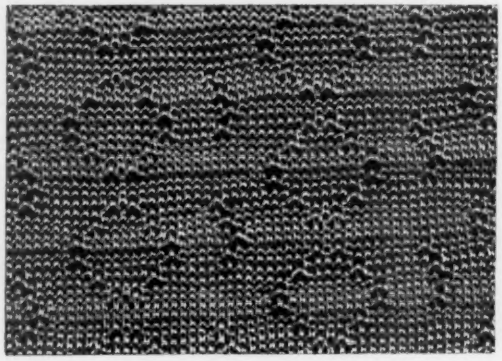


Fig. 5. A simple design wheel figure in an all rayon fabric.

extent of ground to be ample for making up subsequently into a garment.

The design given in Fig. 6 is only a fragment of the full thing and it is developed on a four-feed frame with fancy design wheels at alternate feeds in the machine and these wheels are half as large as the machine circle itself. The design parts are made by having openings in the cir-

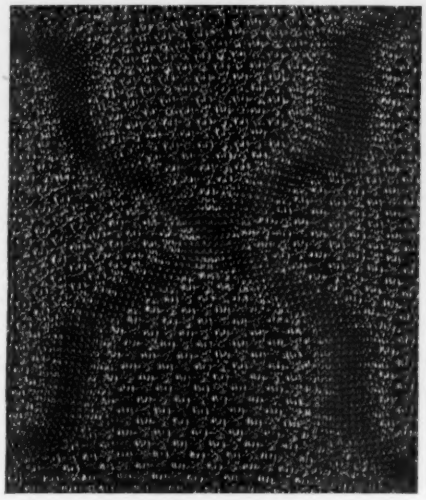


Fig. 6. Two color, tuck stitch, fancy design rayon dress fabric.

cumference of the wheel and for the design parts those parts are blocked so as to leave the needles in tucking position. Or it may be arranged to have the opposite effect, to raise needles to make them knit while those which remain down are made to form the tuck stitches. The design in Fig. 6 is developed in two colors, which have the tuck stitch in the ground. This causes both colors to be completely mixed together to produce an all-over effect. The arched style is obtained by having the ground plain at those parts, so that the dark element shows permanently on the surface and the lighter color element goes on to the back. It is really a kind of knitted plaiting where the dark color appears on the surface and the light element on the back, but they are lying side by side and only very efficient plaiting thread guides will give effect to the scheme. This has to take place with perfect control of the tensions of the two constituent yarns, for the least slackening of either will cause it to roll around and spoil the effect on the cloth.

Knitting mechanics may be divided into two categories: those who can produce perfect plaiting on their machines and those who cannot, and mechanics of the former class are indispensible to the manufacturer of such goods. By the overwhelming preponderence of the tuck portions of this design, the tuck part really becomes the ground and the plain portion is the figure as the smooth surface stands out in striking contrast to the rugged ground in the tuck stitch. It is also attractive to have the dark color rising, so to speak, out of a foundation of its own blend as this adds to the harmony of the resulting color effect. 250 deniers rayon counts is a very suitable counts for this type of fabric and the patterns are used for knitted coats, knit-

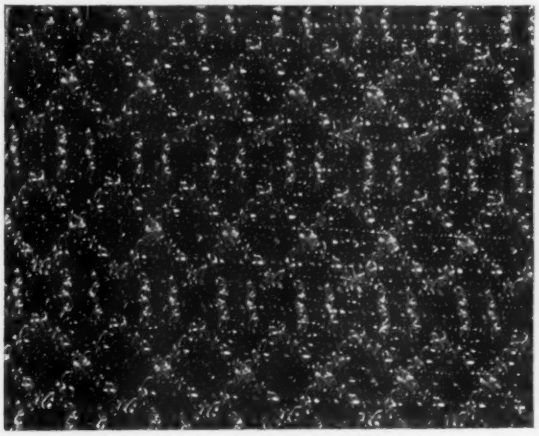


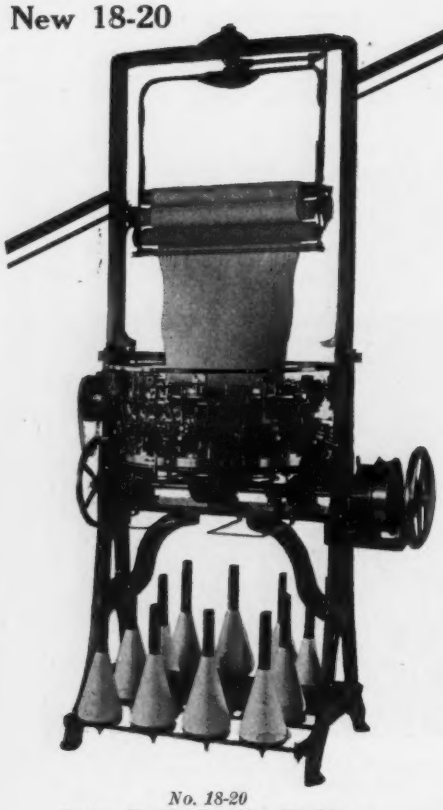
Fig. 7. Warp loom fabric for knitted scarf work in two colors of rayon.

ted dresses or costumes, while a special demand has sprung up for this type of design in knitted scarves. The scarves are made on narrow machines of about 12 inches diameter and the articles are knitted in the circle with the fabric pressed two-ply in finishing and embellished by attaching tassels of the ordinary kind in the same color and materials as the ground.

Speaking of the scarf trade brings one naturally to consider the claims of the warp loom for such goods, as a demand has been very active for the knitted scarf worked in a single fabric and with the perfect selvage which can be obtained so well on the warp loom machine. Fig. 7 gives a view of a pattern which is typical of the designs being offered for this trade. The basis again is rayon throughout although it is possible to provide a cheaper resultant fabric if the white or the dark color is worked in cotton. These designs are, of course, straight all the time and the cross row of diamonds for example have their peak on the same course of loops all the way across the fabric. This is a two color scheme where the white is figured on the dark ground while the back is an exact reversal of this principle.

Merited Confidence

The New 18-20



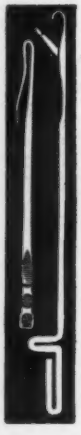
No. 18-20
Spring Needle Rib Top Machine with Stop Motion.

In a New Fabric
COOPER SPRING NEEDLE RIB MACHINE

Making

Rayon, Silk, Fine Cotton, or Worsted Fabrics for Underwear, Sweater Coats, Swimming Suits, etc.

Send for Samples of this New Fabric.



Oldest Makers of Spring Needles in the U. S.

With a solid rock foundation — laid in 1842 as the first manufacturers of spring needles — Cooper has risen steadily with the industry.

Today Cooper Latch Needles are now being produced from special High Speed wire which takes a more uniform temper.

They are now equipped with the improved Non-Turnable Rivets.

They are used by the leading mills of the textile industry.

Cooper Spring Needles
Cooper High Speed Steel
Non-Turnable Rivet Latch Needles

Established in 1842

Charles Cooper Co.

Machine and Needle Works
Bennington, Vermont

G. H. ROGERS, Traveling Representative, 877 Warren St., Albany, N. Y.

C. C. KELLEY, Sales Manager, 121 East 24th St., New York City.

G. W. MORTON, Southern Representative, 1002 Magnolia St., Greensboro, N. C.

Agents: MELLOR, BROMLEY & CO., Ltd., LEICESTER, ENGLAND.

ELBROOK, INC., 50 Peking Road, Shanghai, China, Agents for China and Japan.

M. BUCHSBAUM, Calle Alsina 1814, Buenos Aires, Argentina.

The Yarn Market

Philadelphia, Pa., July 16th, 1928.

As a whole, occurrences in the Philadelphia cotton yarn market for the past month have presented little of an unusual or sensational nature. The accustomed fluctuations and changes in prices, business and activity, common to a market of this character, have occurred, but taken broadly, there was nothing extraordinary to alter the fundamental conditions of the market. There were flurries of strength and weakness, but, aside from the more healthful color given yarns by the continued and increasing strength of raw cotton, and an increasing determination on the part of spinners to maintain prices upon a more lor less satisfactory basis, there is nothing exceptional to report. Fundamentally, the market continues in a good moral position, but the buying element remains apathetic and apparently in charge of operations.

The first week of the month preceding this writing opened up with enlarged inquiry, particularly for carded numbers, but the sales sheets were not materially affected; there was, however, some price shading as a result of the nibbles, and later in the week a more or less general reduction came as a result of this cutting and the attendant spotty buying. Floor covering yarns picked up somewhat during this week, and carded yarns showed the most strength, with quiet prevailing on combed and mercerized, although the price reductions later affected all parts of the list. Raw cotton was doing well, but the reductions came, and as the week moved on the flurry of interest seemed to spend itself. A common quotation on 30s/2 carded warps was given as 38½ cents, at which price it was stated yarns for at once delivery could be found without difficulty.

When the next week arrived, the influence of cotton's continued strength, and its operation in the 21-cent price range, forced quotations back up, but generally speaking there was no immediate reaction in the way of genuine business. The combed yarn men were more prominent in connection with the price advances induced by cotton's position, using them as an indication of their determination not to do business at low levels, claiming that the prevailing prices did not equal cost of production. As the week progressed, considerable business came in largely as a result of the trend in cotton prices, it was stated, and many of the more alert buyers seemed interested in covering their requirements for some time ahead. The spinners, noting cotton's actions, became firmer in their own stand, and some prices got higher than they had been since last Fall, good rates being demanded particularly on orders for advance delivery into August and beyond. Combed yarns enjoyed most of the favorable attention during this week, but mercerized numbers were expected to join them soon.

The third week in this period, which consisted mainly of the Fourth-of-July holiday period, witnessed especial strength on the part of carded yarns, particularly those for weaving, and those yarns in the coarser counts, it being declared that a high-grade carded weaving yarn was in better call than the average combed material. But the market of course was dull, due to vacations and holidays.

The next week brought the resumption of activities in a market which was featured mainly by irregularities coming over from the stop-over. There was the encouragement, however, which came from the curtailment program of the spinners, which heartened the selling element considerably. Spinners continued their firm position, being generally free of stocks and not accepting profitless business. The amount of business was small, but it seemed to be a buyer's market only for spot delivery business, as the sellers seemed to have a stronger position with regard to orders for future delivery.

Philadelphia prices on July 14th follow:

Single Skeins.

4s to 8s	33	10s	33½
12s	34	14s	34½
16s	35½	20s	37
24s	38½	26s	39½
30s	40½	40s	

Single Warps.

10s	34½	12s	35
14s	35½	16s	36
20s	37½	26s	40½
30s	41½	40s	49

Two-Ply Skeins.

8s	33½	10s	34
12s	34½	14s	35
16s	35½	20s	37
24s	39	26s	40
30s	40½	40s	48

Two-Ply Warps.

10s	35	12s	35½
14s	36	16s	36½
20s	37½ -38	24s	39½
26s	40½	30s	41 42
40s	50		

Frame Spun Carded Yarn on Cones.

8s	32½	10s	33
12s	33½	14s	34
16s	35	18s	35½
20s	36	22s	36½
24s	37½	26s	38½
30s	40	40s	48
30s double carded	41	30s tyingin	38½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	45	20s	48 -49
24s	50 -51	30s	52 -53
40s	57 -58	50s	61 -63
60s	66 -67	70s	77 -79
80s	87 -91		

Single Combed Peeler Yarn on Cones.

18s	44	24s	47
30s	50	36s	52
38s	53	40s	54
50s	60	60s	65
70s	75	80s	85

Mule Spun Carded Yarn on Cones.

10s	37	12s	37½
14s	38	16s	38½
18s	39	20s	39½
24s	41	26s	42
30s	43	40s	51

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	50
22s	51	26s	52
28s	53	30s	54
36s	57	38s	59
40s	60		

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twists	32½
8s and 9s tinged tubes	31
8s 3-4 hard twist waste	30

New Link-Belt Catalog.

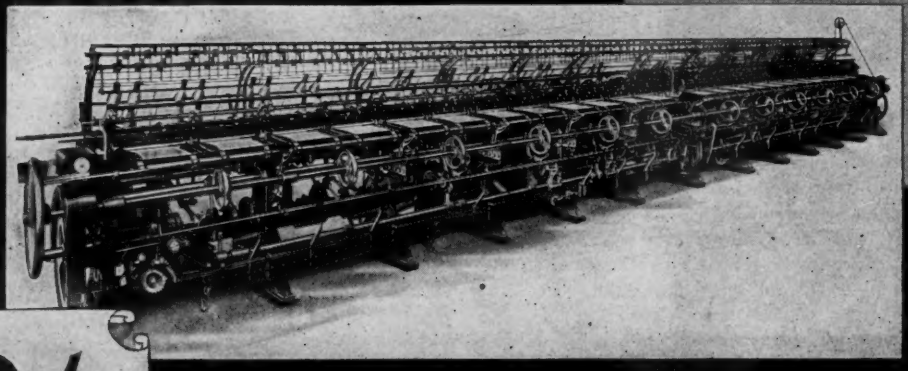
The Link-Belt Company, of Chicago, has published a catalog of general interest to engineers. It consists of 1088 pages and not only covers in engineering data and list prices, the complete chain, sprocket, power transmission, elevating and conveying and engineering divisions of that company's business, but contains considerable data for the engineer.

SCHUBERT AND SALZER
HIGH SPEED TYPE H-S-L

High Speed Production
Increased Output
because they are operated at 65 courses per minute
SUPERIOR QUALITY, TOO
The Result:
Lower Overhead ~ ~ More Sales
Increased Strength Against Competition

"ASK THE MAN WHO OPERATES ONE"

ALFRED HOFMANN, INC.
WEST NEW YORK, N. J.



24 SECTIONS ALL GAUGES

FULL FASHIONED HOSIERY MACHINES
"65 Courses per minute"

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Is the "Suggestion Box" Idea a Good One?

EDITOR COTTON:

I would be very much interested to have some of the readers of "Knitting Kinks" give any experiences they may have had with the operation of a question or suggestion box for employees. I am interested in installing something of this kind in our seamless and full-fashioned mill and would be glad to learn of the practice of other men as to how employees are rewarded for any suggestions they make which may be adopted, and the methods by which the employees submit the suggestions. In fact, I would be glad to have all the details involved in operating a proposition of this kind in any kind of knitting plant.

CONTRIBUTOR NO. 4050.

Cleaning Methods for Circular Machines.

EDITOR COTTON:

This letter is written to discuss the various methods of cleaning circular knitting machine cylinders. It is written in response to the question of "Contributor No. 3051", who said, in the April issue, that he is using compressed air for this purpose, but finds this blows dirt and lint, etc., onto the goods.

I do not consider compressed air the best way for cleaning cylinders and sinkers. In more than twenty-five years of experience with seamless knitting machines of practically all types I have experimented with high pressure steam, compressed air and vacuum systems, and have found them all objectionable and have long since abandoned them.

High pressure systems, whether steam or air, which carry sufficient force to remove lint and dirt have a tendency to jam the same lint and dirt into important slots and to cause uneven sinker and needle action. Also, no matter how carefully handled, they blow lint and dirt onto other machines and yarn and produce at least a very unsatisfactory temporary condition around the machine.

These troubles are overcome with a vacuum system, but no vacuum system I have ever seen has suction strong enough to remove all of the lint and dirt that should be removed from around the sinkers and needles. At the same time, it has the undesirable quality of drawing in all the loose ends of yarn around the machine, which makes it necessary to have all yarns removed from the machine before trying to clean. So I have long since decided that the only way to give a cylinder and sinker head a thorough cleaning is to remove the cylinder from the machine, remove all sinkers from their slots, push the needles down in the cylinder below the level of the sinker head, and clean out each individual slot by hand with hooks and gouges suitable for the purpose.

For the sinker head I find that a slightly curved point hook or gouge made from an old hack saw blade and ground down to the gauge of the sinker is best suited for cleaning sinker slots.

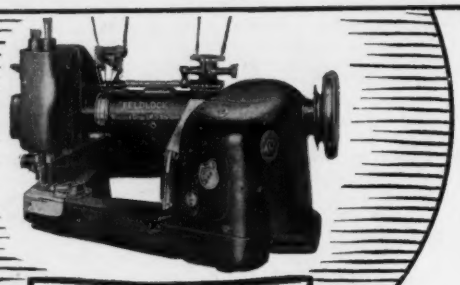
For cleaning needle slots, a gouge made from old needles of the same gauge is best suited for the purpose. This gouge can be made by taking old needles of full length, cutting them off just above the butt, removing the latches and grinding away about half of the hook and setting them up in lead to the true gauge of the machine, and working in a convenient handle on the assembly. The leading or soldering of the needles together to true gauge can be best accomplished by placing the needles in the cylinder and soldering them together while in true position firm enough to hold them in position, then removing and completing the soldering job, building up enough solder to make a firm or rigid hold. This assembly can then be attached to a handle, and as many as four slots at a time can be cleaned out very rapidly by pushing the gauge backward and forward through the slots to the top of the needle cylinder.

A cylinder cleaned in this way will operate absolutely satisfactorily for a period of from one to two years' time, depending on the class of work and gauge of work, and the yarns being used. This statement is meant to cover what would be considered a thorough cleaning of the cylinder, and is not to be construed as meaning that all lint and dirt should not be removed from the surface of the machine every day, or that all available lint should not be removed from the sinkers by a hook from the top of the cylinder at least once a week.

It also stands to reason that when it is necessary for a fixer to remove a cylinder from a machine in order to make repairs—especially a Scott & Williams cylinder which has to be torn down to put in a new cylinder wall—that all parts of the cylinder should be thoroughly cleaned up before re-assembling. I believe that if a man will work along the lines of these suggestions, and wipe up his machines

YOU CAN PUT YOUR FINGER ON THE EXACT REASON FOR FELDLOCK'S GREATER PRODUCTION RECORD

FELDLOCK



The Machine that makes Production

IT FEEDS *OFF* THE ARM

THE Feldlock has firmly established itself as "The Machine that makes Production." There is a sound basis for the preference accorded it by consumers.

The Feldlock feeds *off* the arm. Operatives can work smoothly, rapidly. They turn out production in greatly increased quantities. And greater volume naturally means more economical production.

Every class of tubular seaming is performed swiftly on the Feldlock. The seam itself is not excelled for strength and neatness. The exclusive advantages of the Feldlock make it ideal for your work.

Please request your copy of the illustrated Feldlock booklet.

Sole United States and CORNELY and UNIART

Canadian Agents for EMBROIDERY MACHINES

WILLCOX & GIBBS SEWING MACHINE CO.

HOME OFFICE: 658 Broadway, New York, N. Y., U. S. A.

Baltimore, Md. 321 N. Howard St. | Boston, Mass. 111 Summer St. | Cincinnati, Ohio 206 West 7th St. | Chicago, Ill. 506 S. Wells St. | Cleveland, Ohio 322 The Arcade | Los Angeles, Cal. 939 Maple Ave. | Minneapolis, Minn. 118 South 8th St. | Newark, N. J. 13 Halsey St. | Philadelphia, Pa. 131 S. 12th St.

San Francisco, Cal. 49 Fourth St. | St. Louis, Mo. 1019 Locust St. | *Canadian Representative:* W. J. WESTAWAY Co. Ltd., Hamilton and Montreal, Can. | Troy, N. Y. | Washington, D. C. Fulton & 4th Sts. | 702 10th St., N. W.

JOHN C. LONG & CO. Rua Candelaria No. 81 Rio de Janeiro, Brazil

"Casa Cuba" de H. WIGHTMAN San Juan de Dios No. 4, Havana, Cuba

PARRISH & CO. Apartado, No. 6, Barranquilla, Colombia

J. M. DE LA PENA Balderas 130-A, Mexico, D. F.

WILLCOX & GIBBS SEWING MACHINE CO., LTD., 20 Fore Street, London, E. C. 2, England
Nottingham, Luton, Birmingham, Manchester, Leeds, Glasgow, Belfast, Leicester
PARIS BRUSSELS MILAN

LOS FABRICANTES UNIDOS, INC. 964-972 Calle Belgrano Buenos Aires, Rep. Argentina

PARRISH ELLIS & CO. Apartado No. 36, Caracas, Venezuela

WRITE OUR HOME OFFICE FOR SAMPLES MADE ON THE FELDLOCK, OR SUBMIT YOUR OWN FABRICS FOR SAMPLE PURPOSES

daily with a piece of waste, and have his knitters pick out the sinkers from the top once a week or once in two weeks, that he will find far more satisfactory results than in trying to clean up with any suction or blowing system, and will get better results from his machines.

CONTRIBUTOR No. 4001.

EDITOR COTTON:

I notice the question with reference to cleaning out the lint on hosiery machines. I do not know of anyone using the vacuum system for cleaning hosiery machines. In our mill we use a compressed air system, and we find it very satisfactory, but we do get some of the black streaks mentioned by "Contributor No. 3051" in the April issue, and we would think that even though he had a vacuum system it would draw the lint and dirt through the machine, doing it about as much harm as blowing it through. In our plant we have the inspector throw out all the oily stockings, or class them into what we call "black work". Whenever a lot is dyed into a dark shade or black, we of course use these.

CONTRIBUTOR No. 4002.

Operating and Adjusting Scott & Williams Model H H Knitting Machines. (Part 4).

EDITOR COTTON:

This being the concluding letter of the series on Scott & Williams Model H H machines, I wish to again remind the readers that for my personal information as well as for the general good of the industry, any sins of omission or commission in the three articles in question should be pointed out and explained. Just write to the Editor of the Knitting Kinks division.

Ends Knitting and Cutting Out in the Heel and Toe.

To overcome this trouble the ends which result from the yarn change should be kept as short as possible. Time the yarn change so the yarn to be cut reaches the shears just as they close, if the yarn is carried on by the shears before they close the result will be a very long end. Another aid in overcoming this trouble is to time the double sole presser so it comes out just at the front end or the middle of the yarn change. This allows the end of the yarn that is being placed on the needles to be straightened out by the end of the presser, which keeps it from knotting up in a lump which almost invariably will cut out if it knits in the fabric.

Plaiting in the Leg and Foot.

This question of plaiting is a rather broad one because one person has this particular device to do plaiting and another man has his, and so on. But to boil it all down it amounts to this: It is necessary to have a decided difference in the amount of tension on the two yarns that are used. It always being necessary to have the greatest amount on the surface yarn in the stocking. The two yarns must also be separated a reasonable distance. If one is not particular about the plaiting in the double sole and high heel, no tension should be placed on the inside yarn and less will be required on the surface yarn. It is always desirable to have as little tension on the yarns as possible and as is consistent with good plaiting. The needles must be kept very straight or the plaiting will be bad. If the nibs of the sinkers get in under the yarn good plaiting will be impossible. If the machine goes bad in the plaiting, look for a lump of lint or yarn on the inside yarn, also be sure the surface yarn is in the tension before any adjustments are attempted. Sometimes the inside yarn gets caught on some part of the machine and throws the plaiting off. The yarn should come off of the cone freely for the best results. Keep the sinker ring advanced as far as possible without having the sinkers come under the yarn when the double sole slackening cam is in operation. Have just enough room between the end cam and stitch cam for the needles to pass without binding, also have the end cam smooth at all times.

Plaiting in the High Heel and Double Sole.

One method to pursue in getting the machine to plait in the high heel and double sole is as follows: First have

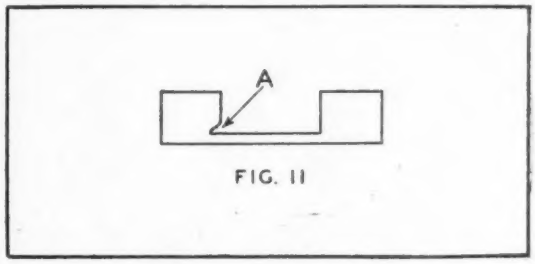


FIG. 11

the yarn come off the double sole cone freely. Next run the inside or backing yarn in with the double yarn alone, do not have the surface yarn in the stocking yet. See that the backing yarn lays about 1/16-inch from the corner of the throat plate, then place tension on this yarn gradually until the plaiting in the sole improves, however, do not put very much tension on this yarn because the plaiting will be all the harder to get in the leg. Usually a slight amount is all that will be necessary. If the plaiting is still bad after this work has been done, raise the double sole finger by hand as the machine is running to see if the plaiting improves. This can be done by placing a screw driver under the finger so it will not drop all the way down.

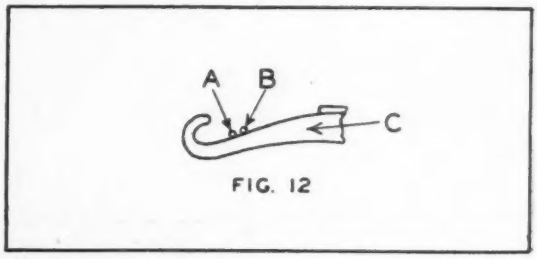
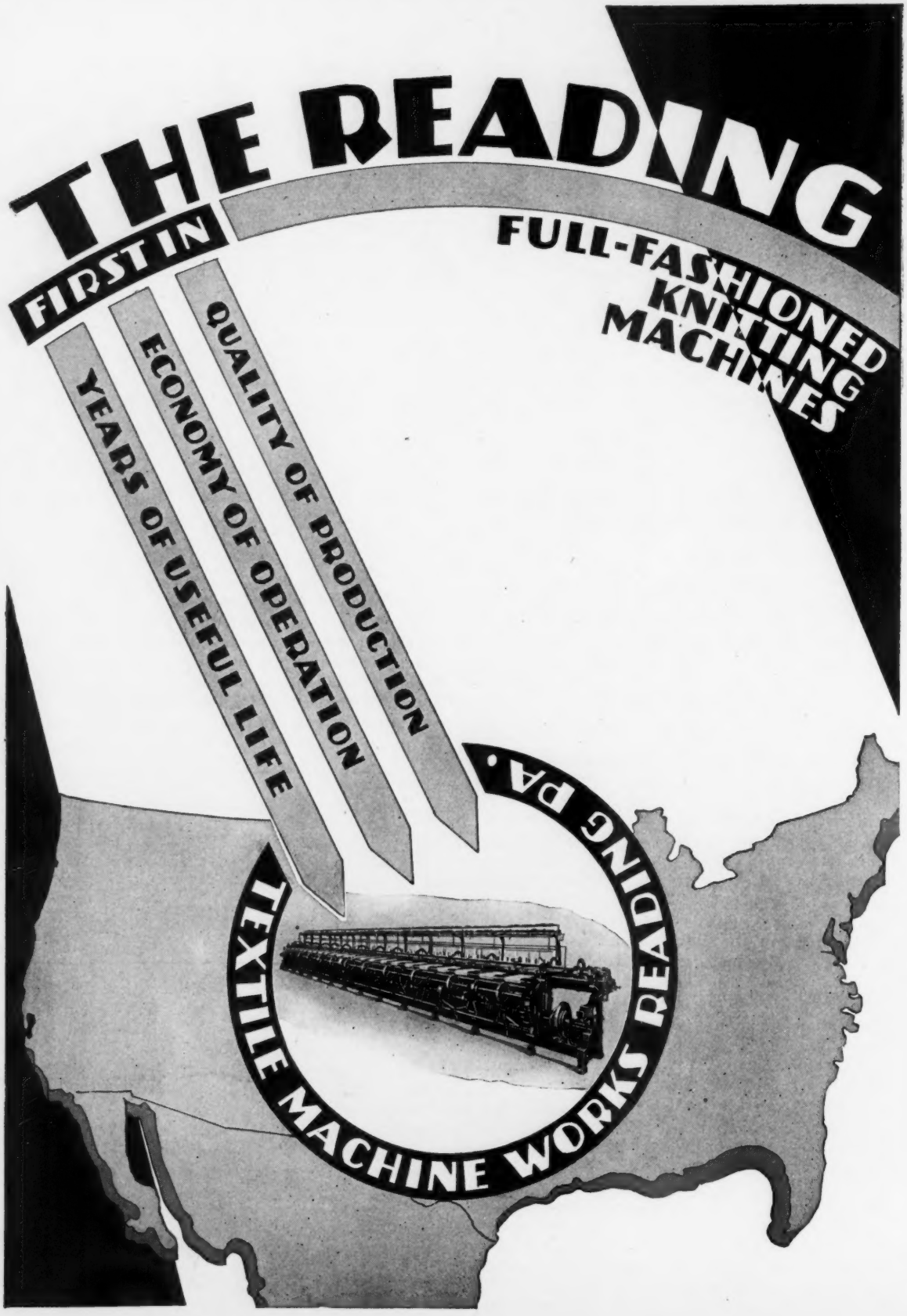


FIG. 12

It is sometimes necessary to bend the first medium butt needle out slightly where the yarn is first laid in the hook as the dividing cam separates the needles. If the plaiting is better after raising the finger with the screwdriver, means to raise the finger permanently will suggest themselves. These suggestions should clear up the plaiting in the high heel and double sole and now the surface yarn can be added to the stocking by being placed in the proper finger. This yarn should lay approximately 5/16-inch from the corner of the throat plate, or about 1/4-inch from the inside or backing yarn, and enough tension placed thereon to secure proper plaiting in the leg and foot. Be sure all the needles are very straight except the first medium in the double sole, which can be bent out slightly as mentioned.

Plaiting in the Rib Top.

This is more or less difficult as the yarns cannot be controlled as easily on the H H as on the R I where very


THE READING
FIRST IN
FULL-FASHIONED
KNITTING
MACHINES
QUALITY OF PRODUCTION
ECONOMY OF OPERATION
YEARS OF USEFUL LIFE
READING PA.
TEXTILE MACHINE WORKS

good plaiting can be secured on the rib stitches. The essential thing is to have the yarns separated properly as they are laid on the rib needles and one help in securing this is to have tension on both threads as they are fed to the needles. If the plaiting cannot be made okeh with the tensions alone, move the throat plate back as far as is consistent with the proper working of the machine in other respects. If this does not overcome the trouble take some fine round emery cord and cut the throat plate back slightly as shown at *A* in Fig. 11. Also, note the sketch in Fig 12 for the correct position of the threads for plaiting in the rib work. In this sketch, the inside yarn is shown at *A*; the surface yarn at *B*; and the grooved hook is indicated by *C*.

Care and Adjustment of the End Cams.

The end cams, as has been stated, should always be kept smooth and free from nicks and worn places from the action of the needle as they contact with them. If this point is looked after the result will be a very much better appearance in the finished stocking, and it will also be a great aid to good plaiting as well as a preventive for cutting in the gore when the stitches are on the tight side. The sketch in Fig. 13 shows the correct position for these cams. There should be only enough clearance between the stitch cam and the end cams for the free passage of the needles as they raise after forming the stitch. The right-hand cam is not adjustable and must be ground to fit, so extra care must be taken so too much is not taken off when a new cam is being fitted in the machine.

Shears Not Cutting Off at the Yarn Change.

If the shears do not close when the yarn is placed in them to be cut and the machine has been working all right in this respect before, the drum has dropped back a little either from wear or because the adjusting screws are loose in the drum driving gear No. 5479. In either case the drum must be advanced so the shear rod will drop off the shear cam on the main drum. This adjustment is secured by means of the screws in the gear just mentioned. If they

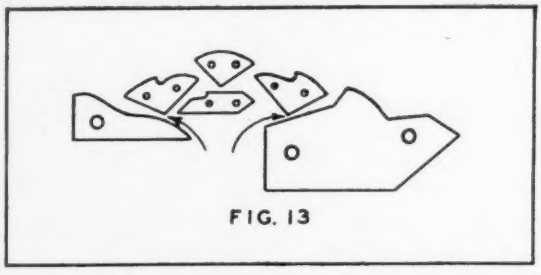


FIG. 13

close before the yarns get around to them, a longer cam must be put on the drum in order to bring the yarn finger out sooner, or if this interferes with making a proper splice a longer shear cam will be required. Usually these shear cams are correct when they come from the factory and will work okeh, if someone has not cut them or the other drum cams.

Yarns Pulling Out Going on the Heel and Toe.

First look at the yarn clamp No. 9352 and the yarn binder No. 8407 to see if they are lying flat on the surface of the dial cap as this is essential to the holding of the yarns during a yarn change. Next rack the machine around until it gets one rack or kick after going off the heel. This will place it on the advanced toe at which point the take-up yoke spring collar No. 6919 should just touch the take-up lever yoke stud No. 6902. However, before this collar is adjusted the yarn take-up bracket should be examined to see if it has been pushed around on the rod, as this will cause the take-up wire to raise or be free to raise when the yarn clamp is raised, thereby pulling the yarn out of the finger.

Yarn Breaking on the Heel and Toe.

Usually a bad needle or sinker is the cause of this, and the needles should be counted very carefully to locate the exact place where the yarn is cut. Examine the needles and sinkers at this point and if they do not seem to be bad or damaged exchange them with ones from the front of the machine. When the stitches in the heel and toe are too tight the thread will sometimes break or if the sinker cams are not set properly the result will be the same. Have

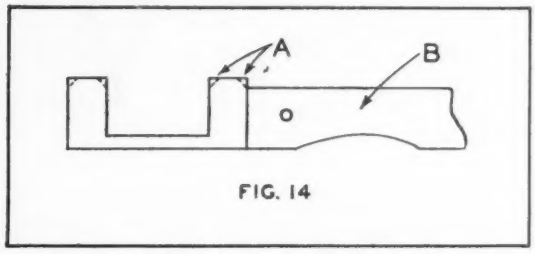


FIG. 14

just enough tension on the heel and toe yarn to keep it from looping or throwing off; any more tension than this will tend to break the stitches and cut the thread in the gore. Uneven stitches will also cause this trouble. These can sometimes be evened up by adjusting the right-hand bumper screw and if this fails the stitch cams should be examined to see if one is longer than the other. If such is the case they should be made even, measuring from the bottom of the stitch cam bracket as has been discussed under a previous head. The oiler glass No. 6830 should be kept filled with a thin, stainless oil and this will help quite a lot in the prevention of broken stitches and threads.

Breaking Cylinder Needle Heads at the End of the Welt.

This is usually caused by the loose ends of the yarn from the starting courses laying over the ends of the castoffs and pushing out the cylinder needles in the first course of the rib. The needle heads catch on the top of the throat plate which is sometimes a little higher than the steel insert. To remedy this remove the throat plate and bevel it, also round the corners a little as shown at *A* in the sketch, Fig. 14. *B* shows the steel insert.

Damages to the Cylinder and Dial Needles During the Transfer.

Cylinder needle heads are sometimes broken or bent downward during the transfer on the steel insert. When the cylinder needle is raised to take the stitch from the dial needle it is sometimes pushed outward, and does not return to its position when the head is entering the latch ring, consequently, the head contacts with the steel insert and bends the head downward or curls it under. The steel insert should be removed and rounded about 1/32-inch at the point of contact. Also be careful not to have the needle presser No. 9431 set too far out during the transfer, as this will cause the cylinder needles to contact at this point. If the dial is set too far ahead, or forward, the cylinder needles will foul on the castoffs during the transfer, bending or breaking them in the same manner. When this is the cause the castoff will also be bent or curled up. To overcome this it is necessary that the dial be moved back by means

Wherever there

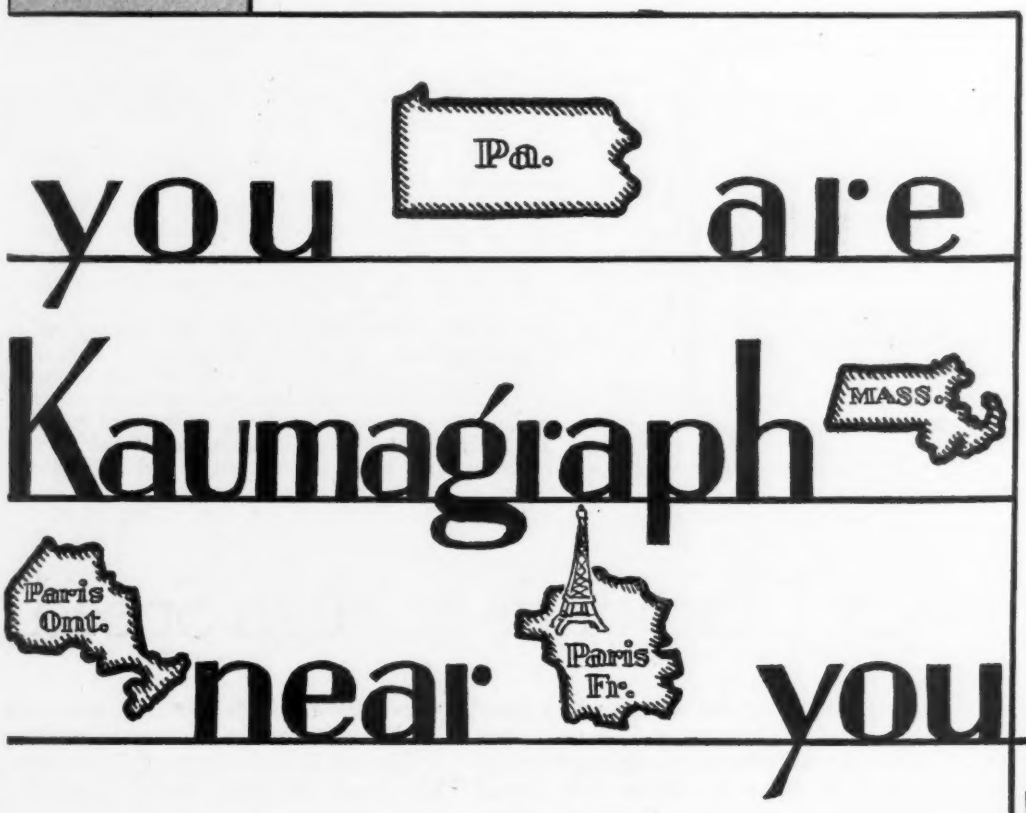
is a

office

SPANNING two continents . . . in three countries . . . and in eight cities, the Kaumagraph Company maintains offices. In each of these offices is a trained executive, schooled to help you with a very peculiar but highly specialized kind of service. He is ready to help you on any matter of identification—by placing at your command Kaumagraph's knowledge, accumulated over a period of 25 years.

You might think that a service of this kind is limited in scope . . . too limited to make any company amount to very much. Yet by penetrating vision of a crying need in business and sheer merit of the service rendered to fill that need, Kaumagraph has carved out an enviable and sizable niche in the business world. For instance, in New York Kaumagraph has built its own 8-story building. In this factory are scores of employees. The demand for Kaumagraph's services has made necessary the opening of one branch office after another throughout the United States and abroad. Only recently a new office was opened in Chattanooga, Tenn., the better to serve the vastly increasing industry of the South.

For Kaumagraph is the only concern in the world whose only concern is the matter of identification.

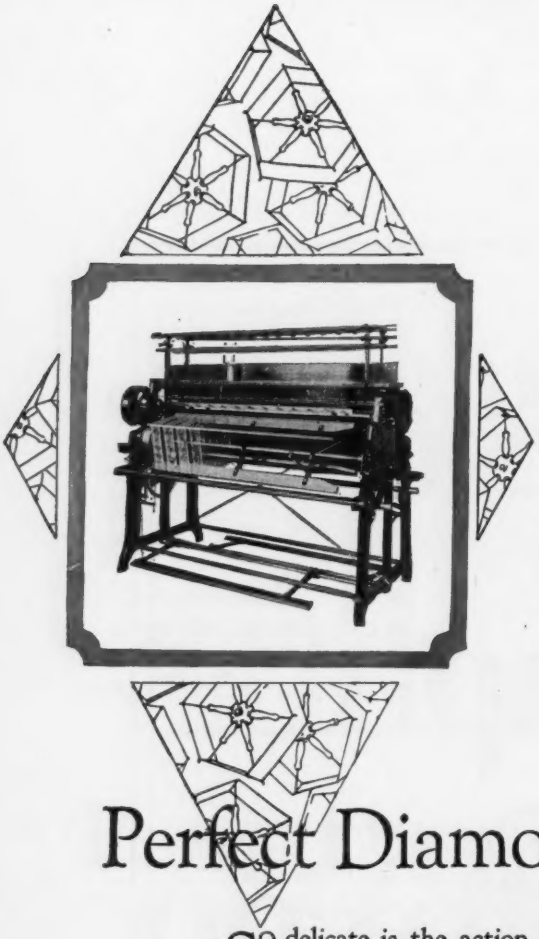


—Identification in connection with trade marking: Kaumagraph will help you design a suitable trademark, help you to register it, help you to select from the twelve types of transfers it manufactures the most efficient and economical type of transfer for your purposes, or it will develop an entirely new transfer if necessary.

—Identification in connection with packages and packaging: you may have a box to design . . . or a rider ticket . . . or hosiery packing. Kaumagraph's Art Department will design for you as it has for hundreds of others, a truly distinctive design. Kaumagraph's Lithographic Department will execute the finished work with absolute fidelity to the original.

If you would like to know the full story of Kaumagraph's service to business—and how Kaumagraph can serve you, write for a copy of "Half the Business Battle." This handsome 56-page book, sent free on request, contains valuable advice and information on many phases of identification. We shall be glad to send you a copy free on request.

KAUMAGRAPH CO., 350-356 West 31st Street, New York
Boston, Philadelphia, Chicago, Charlotte, Chattanooga, Paris, Ont. Paris, France



The Atwood 10K Reel

Good Reeling requires good equipment. The Atwood 10K Type (illustrated) is an improved labor-saving "Model of Perfection," as speedy and accurate in operation as the skill of Atwood engineers could make it. A conscientious regard for infinitely small details is evident in its improved design. The 10K has become very popular and is sold widely. Its performance has established its right to rank among the "Models of Perfection."

Perfect Diamonds at High Speed

So delicate is the action and adjustment of this improved type of reel that thread falls across thread forming exact diamonds as the reel fly draws from the bobbin in building the skein. The reel flys, having either four or six arms, are furnished from 42 to 54 inches in circumference, and hold from eight to twelve skeins each, according to specification.

One of the fine features of the 10K Reel is in having the delivery spools placed above the reel fly. This makes work at the reel very pleasant and eliminates the tiresome back-bending necessary with other types. In starting the machine a foot treadle may be used, thus freeing the hands for more useful operations.

The stop and count motion is worked by electric contact. From the delivery spools the ends pass over adjustable tensions, through very light weight faller wires which stop the reel fly the instant a single end breaks. Length of skeins can be regulated up to 30,000 yards and the reel flys stop automatically when the full length of skein desired has been reeled.

ATWOOD MACHINE COMPANY

Stonington, Conn. 267 Fifth Ave., New York

Representatives; W. A. KENNEDY, 1102 JOHNSTON BLDG., CHARLOTTE, N.C., E. G. PAULES, P.O. BOX 177, INGLEWOOD, CAL.

of the screws No. 15220. First, loosen the four screws No. 15297, then get the two screws No. 15220 up toward the top of the machine by turning the handle. Now come out a little on the front screw and turn the wheel around until a corresponding amount can be turned in on the back screw. This will move the dial backward. Do the opposite to move the dial ahead. *BE SURE TO TIGHTEN THE FOUR HOLDING SCREWS 15297 AFTER THE ADJUSTMENT IS MADE.*

CONTRIBUTOR No. 949.

Cutting Holes in Transfer on R I Machine.

EDITOR COTTON:

We are running Scott & Williams Model R I machines, and are having some trouble with their cutting holes just before going onto the heel on about the second or third short needle from the long needles on either side. We are plaiting 150 denier rayon over 36s/1 combed peeler, using 2 ends of 50s/2 gassed yarn in the heel and toe. Some of our machines are 160 needle 3¾ inch and some of them are 176 needles 3¾ inch. The latter are worse than the others. I have Harry Miller's Hand Book on the Model K and Model R I machines, which you furnished with a subscription to COTTON, but I do not find any reference in it to this trouble.

I will appreciate any help you can secure for me and would be glad to have any readers of "Knitting Kinks" offer any suggestions as to how to remedy this.

G. C. (TENN.)

Mating, Mending and Storing Hosiery.

EDITOR COTTON:

Since some readers have asked questions regarding my article, "A Modern Hosiery Stock Room," on page 641 of the April issue, in which I described and illustrated the stock room I have built for storing silk hosiery, I deem it advisable to give further details concerning it.

The cabinets and racks mentioned were designed for ladies' hose stacked in cross-section and laid out full length, just as they come from the mater. The shelves are 34x34 inches, so as to accommodate the full length stockings without crowding or wrinkling.

After a batch of hose is boarded, it goes direct to the mater. As she mates the stockings, the mater culls all defective goods, such as seconds, mends, and re-dyes. When she has finished with the lot she counts each classification and makes out her detailed mater's report. She then disposes of every stocking on her table. The firsts are turned over to the stock man. The seconds and odd lengths are ticketed and turned over to the girl in charge of the seconds table. The mends are ticketed and delivered to the mender table, and the re-dyes are consigned to the re-dye nets. One man has charge of placing the re-dyes in the nets to prevent mixing of sizes and styles.

When the mender has finished with the mending she turns the mended goods over to the seconds table also. The girl at the seconds table mates up the mended work along with the seconds and classifies them. Any firsts go to the stock room, while all seconds are folded and boxed, ready for shipment. All seconds carry no stamps or marks, but are put up in plain packing.

At one time we had the maters to fold their own seconds, which is a very good plan, but we abandoned this plan because some maters could not discriminate as well as they should, and a second handling and inspecting at the seconds table gives a better check on the mater.

All stock of firsts in the stock room are just mated stock. When we get a detailed order with the stamping and packing instructions, the stock man gets up the order from the mated stock for the stamping girl, who puts on the necessary stamps, stickers and riders. At the same time the label boy has a copy of the order and is having the labels printed as to size, color and number, and placed on the correct style and number of boxes. The stamped goods and labeled boxes are delivered to the folder and each is a check on the other.

Trying to carry folded stock in boxes to be taken down to be stamped and re-folded after the receipt of the detailed order seems to me to be a very unsatisfactory and expensive plan, and I can see nothing in its favor. T. O. (N. C.)

Sizing Ladies' Work on the Banner Machine.

EDITOR COTTON:

I am having quite a bit of trouble sizing ladies' hose, especially after oiling the machines. Every now and then the hose seems to draw up several inches. We have Banner machines and are making string work and cuff top ladies' hose.

Any information which you can secure through "Knitting Kinks" as to the possible causes and the remedies of this difficulty, would be appreciated.

F. R. (TENN.)

Boarding Boys' Wool Golf Hose.

EDITOR COTTON:

I notice that "T.V.(N.C.)" wants some information on the boarding and finishing of boys' wool golf hose.

Different mills, owing to the equipment which has been installed for other styles of hose, endeavor to get along with the same system for wool golf hose, but in my experience it is not entirely satisfactory.

This hose might be termed 3/4 length or some may be 7/8 length, each having separate finishing lengths. The United States Bureau of Standards give the following as finishing lengths:

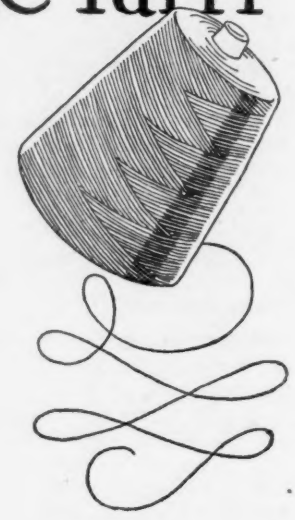
Proposed 7/8 Hosiery Standards.

SIZES Inches	RANGE Inches	MATHEMATICAL Average—Inches	PROPOSED STANDARDS Inches
6—6½	9.0 to 13.0	10.95	11.0
7—7½	11.0 to 17.1	13.14	13.5
8—8½	12.7 to 18.1	14.83	15.0
9—9½	13.7 to 20.1	16.50	16.5
10	13.5 to 20.0	16.94	17.0
Children's Ribbed Sport Hose			
6—6½	11.2 to 12.1	11.75	11.5
7—7½	12.8 to 13.7	12.60	13.0
8—8½	13.9 to 15.1	13.6	14.5
9—9½	15.5 to 16.2	15.9	16.0
10	16.4 to 17.0	16.8	16.5

These lengths were determined in conjunction with the National Association of Hosiery and Underwear Manufacturers, and make very accurate and acceptable data.

In the finishing of wool sport hose, as other wool hosiery, it has been proven that woolen hose or knitted fabric is given a better finish if it is dried from the outside to the

Hosiery Quality Begins With the Yarn

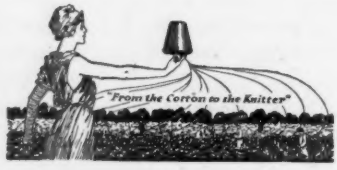


The lustre and sheerness which you prize in your finer grades of cotton hosiery are entirely dependent upon the yarns that go into them.

That you may be absolutely sure of obtaining these qualities in all of your merchandise, we have perfected all mercerizing and spinning processes to the point where the same unusual fineness, strength and evenness is produced each time.

No matter what number of yarn you require, you may be absolutely sure that in every case the yarns will meet in every detail the uses to which they will be put!

Prompt deliveries . . . always!



AMERICAN YARN & PROCESSING CO.

Mount Holly, N. C.

Northern States and Canada:
Waterman, Currier & Co., Inc.,
Boston, New York, Philadelphia, Chicago,
Reading, Pa., Utica, N. Y.

H. B. Ketchum, Mgr., Export Dept.,
42 Broadway, New York City

H. B. Robie.
93 Worth Street, New York City

Louisville Textile Co., Inc.,
Louisville, Ky.

David Whitehurst,
409 Parkway, High Point, N. C.

R. D. McDonald,
924 James Bldg., Chattanooga, Tenn.

inside, and not from the inside to the outside. Therefore, metal forms that are used for silk, cotton and mercerized hose do not in my experience, give the desired effect on wool hose.

The steam press, or as some call it, the paper press, is in my mind the ideal equipment for wool hosiery and any hosiery that contains wool. The wool hose are boarded on wooden boards and placed in the press, full length, and the plates closed down as in the paper pressing. The steam pressure required for wool is more than that needed for cotton and other fabrics than wool. Pressure on wool goods from 20 to 30 pounds on a double plate press is desirable. On the single plate press the pressure need not be as high and can be governed by the finish and drying of the hose.

The double plate press is the more practical as better production is obtained and there is a better chance for thorough drying, allowing a longer time for the goods to be in the press. Wool, being an animal fiber, should not be subjected to too extreme a heat or for too long, as it injures the fibers. An authority on finishing wool goods gives the following advice on hot pressing on knit goods. He claims the cell structure on wool fiber is altered so that moisture absorption quality is reduced, but this is caused by the press being too hot and the goods being exposed to terrific heat. He also says that goods have a most exacting finish and more lasting than when done by any other methods; also that the steam pressure to be used should not be more than 15 pounds to the square inch.

My personal experience has been to control the pressure of the steam depending upon the weight of the goods.

In the washing-out process before boarding, there is usually loose dye, as these hose are knitted from colored yarns. The wool goods should not be subjected to too hot a bath, and a good grade of soap or soap chips should be used, working them or milling, as some term it, and rinsing in not too cold water until the rinse is clear of any color. Some use acetic acid in the rinse.

The goods should not be extracted too dry, and should not be left long before boarding.

I hope this information will be helpful. If someone else has other ideas, I would be glad to have their comments. I am in favor of the steam press for wool goods, and know numerous other manufacturers who use nothing else for finishing wool goods.

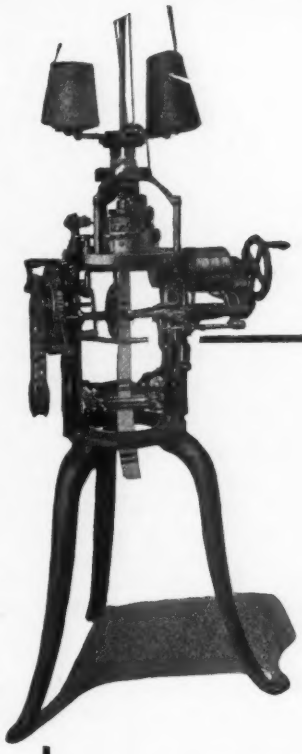
CONTRIBUTOR No. 4028.

Answers to Underwear Questions.

EDITOR COTTON:

Is it practical to run 30s K.P. yarn on an 11-cut rib underwear machine at 28 stitches per inch? This is the essence of a question asked in the May issue by "Contributor No. 4007," who said in doing this he has trouble with unhooks on the cylinder needles. He said he had tried all sizes of hooks, even offset hooks, with little success, and he wanted opinions as to whether he is trying to knit too tight on this cut machine.

It is my opinion that he is trying to get a very tight cloth—using 28 stitches per inch on this machine. As to suggestions that might aid him, it might be possible to set the 11-cut rib machines to knit 28 stitches per inch by very close adjustment of the guides to the cylinder needle line. It might be necessary to grind the guides for this setting.



Ribbers
Body Machines
Hosiery Machines
Necktie Machines

Circular Machines for Every Purpose

We will be glad to furnish information of our complete line.

WHEN you install or replace machines in your mill, too much depends upon choosing the right ones for you to trust to luck. To protect your investment and the prestige of your product, select Brinton machines with their forty-year-old reputation for dependableness.

H. BRINTON COMPANY
3700 Kensington Avenue, Philadelphia

BRINTON CIRCULAR KNITTING MACHINES

FOREIGN AGENTS

Great Britain and the Continent: Wildt & Co., Ltd., Leicester, Eng.

Australia: J. H. Butter & Co., Sydney.

South America: M. Buchsbaum, Calle Alsina 1814 ,Buenos Aires, Argentine Republic.

China and Japan: Elbrook, Inc., 50 Peking Road, Shanghai, China.

Additional tension on the take-ups also might help this situation. Possibly a slight advance in the timing of the machine might help; by that I mean he can move the dial back in relation to the cylinder. C. P. (GA.)

EDITOR COTTON:

Answering "Contributor No. 4006" in the matter of knitting 30s/1 combed peeler yarn on 11-cut ribbed underwear machine at 28 stitches per inch, we have found that the only way to overcome the trouble which the contributor runs into, that is the unhooking of the cylinder needles, is by knitting this number on a 14-cut instead of 11-cut. What happens in knitting 30s/1 on 11-cut at 28 stitches to the inch is that a stitch is so tight that the loop hugs the cylinder needle so close that when the needle raises, it takes the loop with it. On the other hand, when the stitch is loosened up to 26 or 26½ stitches as presented in this question, it loosens the loop enough to let it go down where it belongs. The contributor's opinion that he is trying to knit too tight on this cut of machine is correct, and he should use a finer cut. Our advice would be nothing under a 14 cut machine. CONTRIBUTOR NO. 4017.

Hydroscopic Treatment of Silk for Knitting.

EDITOR COTTON:

There has been some considerable discussion in "Knitting Kinks" about "crepe lines" in full-fashioned knitting, and I notice in the March issue one of your contributors is interested in securing information about the hydroscopic treatment of tram silk for full-fashioned knitting, especially in connection with eliminating these crepe lines.

For the benefit of this man and others interested, I might say that about two years ago, our customers complained about crepe lines in our hosiery, and investigation showed that most of the trouble was in the treatment and condition of the thrown silk. We then began to experiment with various kinds of treatment for thrown silk, and found that hydroscopic treatment, properly applied, was the only one that would almost entirely eliminate the so-called "crepe lines." We found, however, that there are various kinds of hydroscopic treatments of tram silk, and some of them were such that they gummed up the needles on the machines and caused any amount of trouble.

At this point it might be well to describe the term hydroscopic treatment, and tell what it means.

The term hydroscopic treatment as used by the throwsters of silk, actually means that this is a treatment of silk that takes up moisture rapidly and holds the moisture for a long period of time. Of course, there are many dangers connected with securing this treatment, and unless it is done properly, will cause the knitter any amount of trouble. The oils and ingredients used to make the silk hydroscopic are such that if not properly proportioned, will result in the silk containing too much "acid" or too much "alkali."

If the silk, so treated, is on the acid side, it results in the needles on the knitting machines turning a greenish color and in a very short period of time, the needles become rough and the fabric will not move up and down on the needles, or in other words, will stick to the needles.

Should the silk be treated on the alkali side, it causes the gum in the silk to flake and this will soon be detected on the knitting machine, because the needles are covered with this gumming substance and the carriers also become clogged with a gummy and sticky substance.

In order to make silk hydroscopic and at the same time, not cause the needles to turn greenish in color or gum up the needles, the throwster must make this treatment, so that it is, what is called in chemical terms, as "almost neutral" and at the same time must have the silk treated so that it will take up moisture rapidly.

I am sure some of your readers will be interested in this information, as many times silk is secured from the throwsters and after it is on the knitting machines for several days, it absolutely will not run properly and has one guessing as to the cause of the trouble.

As moisture is very necessary in securing evenly knit fabric, the hydroscopic treatment of silk is one of the best treatments that can be used in connection with full-fashioned hosiery manufacturing because a treatment of this kind will take moisture very rapidly and hold it for a long time. The only thing that must be done is to purchase silk from a throwster, who thoroughly understands how to treat hydroscopic silk properly; otherwise it is one of the most troublesome treatments that can be used.

The silk that I have been using for the past two years is a hydroscopic treated silk; but as the throwsters do not give away their secrets, I cannot give information as to the kind of oils used in connection with this treatment. I will, however, try to give some of my experience as to the results obtained in using this silk.

The one great advantage in using a hydroscopic treated silk is that the silk so treated, is soft and pliable and not only absorbs moisture very readily, but also retains the moisture during the process of knitting. Due to knitting machines contracting and expanding very easily, the knitting rooms of most mills are kept quite warm, with the result that the silk dries out quickly. As most of the so-called "crepe lines" are caused through dry silk, any silk which will hold moisture for a long time, is best adapted for knitting purposes. Another advantage in using hydroscopic treated silk is that the oils that are used in connection with this treatment will cause the silk to run off from the cone smoothly and evenly and lessens the danger of uneven tension or causes the silk to stick to the cones. The same thing can be said when the silk is forming the stitch on the sinkers and needles. Because of the silk being pliable and oily, it moves freely on the sinkers and needles and this is where the stitch is actually formed and a pliable silk thread that is moist and oily cannot help but form an even stitch.

Since using hydroscopic silk, we have never had to polish our sinkers or needles in the machines and we also found that silk so treated does not mold or become mildewed, which resulted in a saving to us, because formerly with other treatments, we had considerable silk spoil on account of a mildew condition.

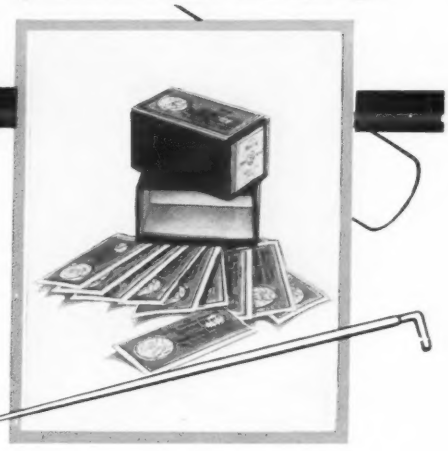
During the cooler months of the year, we find that hydroscopic silk is excellent, but during the summer months when the humidity is high, we find that we must be careful in not moistening the silk too much, because the principle of hydroscopic treatment is to absorb moisture and in the summer months, the silk becomes too moist and it is difficult to dry out the hosiery after being made.

I note that the contributor stated that he was afraid to experiment with hydroscopic treated silk, because of the danger of this kind of treatment tendering the fiber, but

GREATER PRODUCTION
BETTER PRODUCTION

with

TORRINGTON Full-Fashioned NEEDLES



TORRINGTON Full Fashioned Needles go far toward maintaining production schedules. Of even greater value is their ability to produce work of superior quality. ¶ These needles possess features which knitters of full fashioned hosiery have not hitherto found available. They are unusually accurate in formation and dimension, very close to unvarying *uniformity* of temper, and easier to prepare for actual knitting. ¶ These advantages result in economical production. Though Torringtons cost a trifle more than ordinary needles this difference is more than discounted by their proven ability to turn out more and better knitting. ¶ We have some interesting facts and figures to put before you . . . write us now to send them.

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

THE TORRINGTON COMPANY
CHERRY AND JUNIPER STS.
PHILADELPHIA

BRANCHES:
C. B. BARKER & CO., LTD.
140-144 W. 22ND STREET
NEW YORK, N. Y.

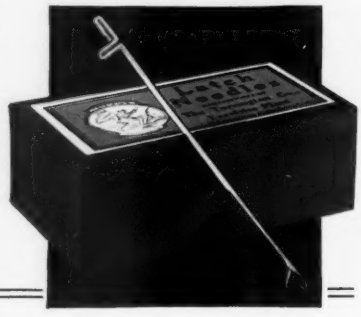
LOS FABRICANTES UNIDOS
964 CALLE BELGRANO
BUENOS AIRES

FACTORIES AT:
TORRINGTON, CONN.
UPPER BEDFORD, CANADA
COVENTRY, ENGLAND
AACHEN, GERMANY

ACCURACY

YES! IT IS WATCHLIKE

A Latch Needle seemingly is delicate in construction. In reality it must possess surprising strength and temper. And a variation in dimension so small that the eye cannot detect it makes the difference between a quality fabric and a 'second.' ¶ These problems are well understood at Torrington. They are overcome by long specialization and expertness in precision manufacture. Even special gauges have been developed to insure accurate dimensions. ¶ Correctness of design, smoothness, temper and *uniformity*—attributes of dependably satisfactory needles—are characteristic of Torringtons. Torrington background, resources and experience make them possible.



The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

THE TORRINGTON COMPANY
CHERRY AND JUNIPER STS.
PHILADELPHIA

BRANCHES:
C. B. BARKER & CO., LTD.
140-144 W. 22ND STREET
NEW YORK, N. Y.

LOS FABRICANTES UNIDOS
964 CALLE BELGRANO
BUENOS AIRES

FACTORIES AT:
TORRINGTON, CONN.
UPPER BEDFORD, CANADA
COVENTRY, ENGLAND
AACHEN, GERMANY

evidently he has been misinformed as there is nothing in a treatment of this kind that can in any way injure or affect the silk. If such trouble did occur, it was because the proper oils were not used or else the treatment of the silk was done by some one who was not competent.

Many throwsters, for the past several years, have been advertising so-called special treatments and I have found from experiments made that a great deal of this is humbug. Because of this, I believe it is necessary for any full-fashioned hosiery manufacturer today to buy his silk from reliable throwsters only; and as each throwster has two or more treatments, including hydroscopic treatment, try out each treatment, and the one that gives the best result is the one that should be used at all times. Continually changing throwsters or treatments is a bad policy, so I can only suggest to the contributor that he try a good hydroscopic silk and, with proper care in winding, he will find that he will have less trouble in running silk with this treatment, and I feel certain he will find that the percentage of hosiery with "crepe lines" will be very small. No treatment will entirely eliminate "crepe lines," but I have tried almost all known treatments, and hydroscopic has given better results than any other treatment I have tried.

CONTRIBUTOR No. 3061.

Causes of Loops in Back Seam.

EDITOR COTTON:

In a recent issue "B.G.(Cal.)" reported difficulty with loops in the back seam, caught on a needle some distance from the seam needles on a 3½-inch Model K machine. He stated that a number of things had been done, such as raising the seam yarn finger, smoothing the dial and keeping the needles well pulled down in line; but said that running the seam yarn tight helps but might cause the yarn to break. He also said that the machine has the latest seaming attachment and that the cam which pulls the needles down does not slip off of the short needles. The trouble occurs on one machine but not on every stocking.

Several years ago when we first equipped our machines with seaming attachments we had this same trouble, but finally overcame it with the following methods:

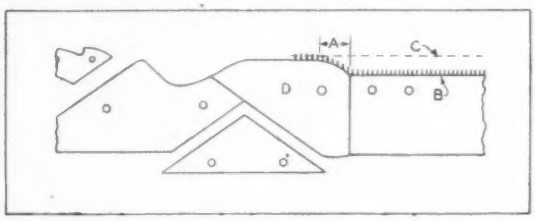
The fact that "B.G." says that running his seam yarn tight helps, but does not stop it entirely, leads me to believe that his main trouble is due to the fact that when the seaming needles are in action and as they pass the seaming yarn feed finger No. 7728 to take the yarn, then when the butts of the seaming needles start to rise on the right auxiliary side cam, at point *A* as shown in the illustration, the seaming yarn gets caught on the hooks of the short needles at this point. The reason for this is the distance the yarn has to travel from the seaming yarn feed finger to the slope of this cam; the yarn lies close to the hooks of the needles at the point where they start to rise, causing the needle every once in a while to overthrow, resulting in the yarn getting caught on this needle besides the seaming needles. This does not as a rule, get the same needle, but I have found it to vary from the medium butts to the seaming needle, and it always occurs on the left side of the seam when the yarn is held from the toe down with the seam in front.

There are two remedies for this condition. First, the seaming yarn feed finger should be kept bent in toward the seaming needles as far as possible, so that they just clear the seaming needles by a "cat's eyebrow", so to speak. By so doing, the seaming yarn is held away from the hooks of the needles when they start to rise, with less chance of its catching.

Another way out is to bend the first two short butt hooks on the left side of the seaming needle out toward the operator, and the first seaming needle in. This will have a tendency to pull the yarn away from the hooks, also stopping this trouble. I have found this to be the cause of most of this trouble, and I hope I have made myself clear on this point.

Referring again to the sketch, the slope at point *A* on the side cam must not be too steep. If this is so, the needle will point up, causing the same trouble.

The draw-down cam No. 9137 on the draw-down cam lever must be set so that there is no possible chance of more



Showing Part Sketch of Cam Ring Lay-Out. The level of the seaming needles when in action is shown at B; while the dotted line C shows their level when out of action. D is the right auxiliary side cam.

than the seaming needles going into action. I have had instances where the butts of the short needles were bent, or the draw-down cam was not set according to the curve of the cylinder, or there was too much play between the cam and butts of the seaming needles as they passed this point.

If "B.G." has machines on which the seam goes into action by the drum cam on the belt shifter, it would be advisable to see whether the screws on these drum cams are on an even level with the cam. If the holes are counter sunk too much and the heads of the screws are below the cam, the draw-down cam will come out a little further as they pass these points, leaving too much play between the seaming needles.

RYMI.

Yarns Too Coarse for 11-Cut Machine.

EDITOR COTTON:

In the "Knitting Kinks" section of the June issue of COTTON I notice that "Contributor No. 4007" has trouble making as firm a fabric as he wants from 30s/1 K.P. yarn on an 11-cut rib machine.

He is correct in his belief that the cut is too coarse for the yarn. It is necessary to use a 13 or 14 cut cylinder to secure the best fabric from 30s yarn. A fabric constructed from No. 30s should when pulled down, have about 30 wales per inch, and if "Contributor No. 4007" sets his dial at the right elevation, he can adjust the stitch to put as many as 36 courses or stitches per inch vertically.

A fabric constructed upon this basis will possess the greatest amount of elasticity.

CONTRIBUTOR No. 4048.

OUR GROWTH is an expression of the demand for "quality" mercerized yarn, with uniform strength and lustre.

STANDARD MERCERIZED YARNS are supplied natural, gassed, bleached or dyed, on cones, skeins, warps or tubes.

STANDARD-COOSA-THATCHER Co.
Chattanooga, Tenn.

Executive and Sales Office
720 Lafayette Building,
Philadelphia, Pa.

Canadian Representatives
Wm. B. Stewart & Sons, Ltd.,
Toronto Montreal

Standard

MERCERIZED YARN

Sales Offices
Greensboro Bank & Trust Bldg.,
Greensboro, N. C.

334 Fourth Avenue,
New York City

Chattanooga, Tenn.

When Thousands Endorse It—
You owe it to yourself to try it FREE!

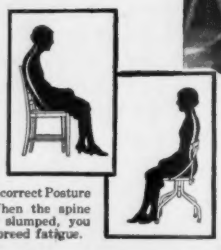
MANUFACTURERS—in every line—make enthusiastic claims. Costs are cut—production shows surprising increase—less time off by employees—all of them are factors of utmost importance that contribute to increased profits. These tangible results of Do/More Factory Seating are proved! And the reason for these profit-making results is so simple. Correct posture eliminates fatigue. Do/More Correct Posture induces: (1) full lung capacity breathing; (2) refreshening of the blood; (3) free exhalation of carbon-dioxide; (4) natural elimination; (5) unstrained nervous system; (6) reduction of muscular effort.

More Work
BETTER Work
Healthier Workers

Correct Posture
A Do/More induces correct posture and promotes health.

Actual Trial in Your Plant—FREE

YOU want to cut costs and increase profits! You want better work from healthy workers! You can get it. Try a necessary number of Do/More Seating Units in a department where fatigue runs rampant! Make it a satisfactory trial—equip half the department with the adjustable Do/More—*at our expense.* Watch results! The decision rests with you. If they do not sell themselves—return them, freight collect. It won't cost you a cent! Absolutely no obligation! Simply mail coupon—*Now.*



Incorrect Posture
When the spine is slumped, you breed fatigue.

DO/MORE CHAIR CO. Elkhart, Indiana

MAIL WITH YOUR LETTERHEAD

To Do/More Chair Co., 254 Monger Blk., Elkhart, Ind.
☐ Have "Do/More Man," near us call with complete information regarding your liberal *Free Trial* Plan.
☐ Without obligation, explain the Do/More Idea of Factory Seating.
Please address reply attention Mr.

Check service MOST VALUABLE to you NOW

DO/MORE · FACTORY · SEATING

The Knit Goods Market

Hosiery

OF PARAMOUNT interest concerning women's silk hosiery is the question as to what is going to be the effect of the increasing use of Bemberg and fibers that have hardly passed the experimental stage, and how much further will retailers go in the direction of price competition among themselves and with chain stores, and the attitude of manufacturers toward lower retail prices.

A Philadelphia department store last month caused a sensation in the trade by announcing that it would offer regularly a line of pure thread seven thread silk knitted 42-gauge for a dollar a pair. The stocking is 29-31 inches long, the silk extending to above the knee, and is made with sandal foot. It is sold under the store's brand and the claim is made that every pair is rigidly inspected and is perfect merchandise. It has been on sale long enough to prove its acceptability to the store's clientele, it is stated by the hosiery department manager.

Full-Fashioned Is Active.

Dollar full-fashioned and silk chiffons have been a big seller in shoe stores and specialty shops for some time, but it is alleged that the shoe stores simply used them as leaders, sacrificing profit on hosiery to be made up on the shoe lines, and that most of the dollar chiffons were irregulars or made for a price. Much business was lost to department stores by indiscriminate selling of dollar hose in small establishments. It is believed in the trade that Lit Brothers, at whose department store the dollar sheer service weight is on sale, have driven the entering wedge for recovery of much of this business. At any rate, a dollar price for a really meritorious stocking has been established in Philadelphia, contrary to the view of a hosiery trade specialty writer who as recently as two months ago maintained that a serviceable stocking for that price was an impossibility. The mill price for hosiery of the description installed by Lit Brothers has been $9.57 to $10 a dozen.

A southern mill, understood to be the Watkins Hosiery Mills in Chattanooga, Tenn., is exploiting a full-fashioned line designed to sell for a dollar, but information as to the gauge and number of strands of silk is withheld as being of no moment to the consuming public so long as the stocking is satisfactory to wearers. This is in accord with a frequently expressed view in the trade, that the customer at the counter is interested only in the appearance, fit, serviceability and general construction, whether the stocking be of one gauge or another and regardless of the quantity of silk as expressed by the term strand. It is stated the southern mill referred to has orders coming thick and fast, keeping the plant busily engaged.

Now that the dollar price is an actuality, it is thought competition in quality will be as keen among manufacturers as price has been, with raw silk steadily declining. But with a drop of approximately 70 cents to $4.80 a pound in July, from $5.50 in April, it looks as though around current prices for hosiery will be maintained for Fall. The William Brown Co., Philadelphia, nationally known makers of Granite brand hose, at a sales meeting early in July failed to fix Fall prices, nor were colors decided upon. It was intended to announce these details to the retail trade about the first week in September. There was given a slight intimation that prices might be revised and that it appeared the drift was to darker shades. Commission dyers say darker shades already are indicated in the specifications they receive, and that, in cadence with the retail price trend, more mills are substituting 2½-inch mercerized hems for silk to top, the idea being to strengthen the stocking at one of its weaker points, where strength is desirable.

Demand Is Taking Production.

In a general way, it appears that the weight of the business in full-fashioned silk is in the hands of manufacturers selling their unbranded lines to jobbers and large retail stores. This was especially indicated in Philadelphia and Reading in July. There was a slowing down in production in both cities, and in Philadelphia, in addition, Saturday work was almost entirely eliminated, as it will be to the end of August. There would therefore appear lessened output. But as numbers of new mills have gotten into operation in the last month or two, there probably has been no decline in this respect. And it looks as though the market is absorbing about all the full-fashioned that is coming out, so that it hardly can be said there has been serious over-expansion of the industry.

According to reports of manufacturers to the Department of Commerce, the indicated output in May was greater than in April and also ahead of May for 1927, the totals for 1928 to the beginning of June being 6,610,823 dozen

MARKET CONDITIONS IN BRIEF.

ORDINARILY one of the two dullest months of the year, July appears to have made a record for activity in hosiery. There was ample evidence of increasing sales of full-fashioned silk, while mill production was curtailed. The lowest retail prices for this year may have had something to do with the apparent gain in consumption.

Sweaters were less active on price advances which were announced in June, and, to a considerable extent, are being adhered to. Reports as to bathing suits which have finished their season for mill and jobber, are conflicting, but accepting the more rosy view, there appears some doubt of the expendiency of an early opening for the 1929 season.

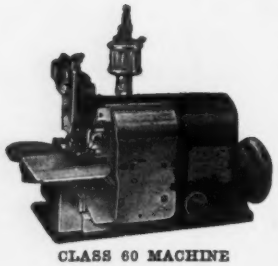
Underwear seems the more puzzling problem in the three major divisions of knitted goods. Manufacturers are waiting for jobbers to give the signal for the opening of men's Summer weights for next year, and jobbers are waiting for manufacturers to indicate a policy calculated to maintain market steadiness regardless of the course of prices for raw cotton.

MERROW

REG. U. S. PAT. OFF.

HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

——200 VARIETIES FOR 200 PURPOSES——



CLASS 60 MACHINE

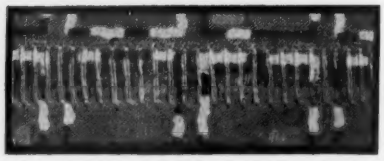
INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.



Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread **FLAT SEAMING** on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

THE MERROW MACHINE COMPANY

16 LAUREL STREET, HARTFORD, CONN.

NOW---meet color competition!

HOSIERY manufacturers, engaged in the refinement of color are finding that STRICKLAND SAMPLE DYERS perform an improved service which is necessary under present-day competitive conditions.

Strickland Machines are capable of handling a wide range of colors with quickness and accuracy. They are so constructed that goods are under the solution all the time —assuring perfect penetration and uniformity of coloring that instantly wins admiration.

Construction: Monel metal throughout except bronze shaft and coils. A scientific drop bottom prevents hanging up, at the same time aiding circulation.

All Stricklands can be equipped with individual motor drives if desired. Write for information.

STRICKLAND PATTERN WORKS,
CHATTANOOGA, TENN.

Made in 5, 10, 25, 50 and 100 lb. sizes.

STRICKLAND
SAMPLE DYERS

pairs, comparing with 5,787,442 for the corresponding period of last year, an increase of 823,381 dozens, which is partly offset by a decline in production of rayon and rayon combinations, which fell back by around 650,000 dozens. Add to this drop the loss of over 200,000 dozens of cotton hose, and the increase in full-fashioned was less than the loss in the seamless.

Mesh Hosiery—Pointex Heel.

A reported break in the price of pointex heel hose is regarded as supporting the notion prevalent in many quarters that, after all, the square heel is not to be displaced by novelty construction. The lower price for pointex was named to a department store by a jobber, the reduction being 75 cents a dozen from the recognized established quotation. Despite adverse opinion of the continued popularity of the pointex, almost every week or two another mill is added to the list using it under license from the owner of the patent, and various constructions intended to carry a slenderizing effect are making their appearance in rapid succession. What appears the better guess in new heel construction is a narrowing of the square. The great bulk of current business is in staples, and it appears not to have been materially affected by offerings of mesh hose.

At the more exclusive stores it is stated that, while the mesh stockings are selling fairly well in the higher priced full-fashioned, sales have suffered from liberal offerings of the seamless silk mesh, to sell for around $1.50 a pair, in contrast with around $3 to $5 for the full-fashioned. A leading mill making the latter type reports some little mesh business booked for Fall, and some factors say it will be worn through the Winter by women preferring it to regular flat knitted chiffons. With seamless lisle mesh selling somewhat freely for a dollar a pair, it seems likely the high price silks have not moved as well as had been anticipated. The lisle stocking in mesh weave is liked for its sports effect and the price as well. At this writing it had not been recorded that Bemberg was being tried out for mesh hose, but it seemingly is cutting a wide swatch in competition with tram silk.

For some time the Lincoln Hosiery Corporation has been knitting 42-gauge hose from 120 denier Bemberg and selling it to large department stores for $8.50 a dozen. Another Philadelphia mill is unofficially reported knitting a sheer Bemberg, and still another has developed such a number, which is expected to be on sale in several leading department stores in August, if it has not already made its appearance on the counter. It was stated the price of the sheer Bemberg would be $1.95 a pair, and that this figure would be maintained as the resale price, from which it is conjectured the American Bemberg Corporation is in close cooperation with the mills picked to make it and the stores selected for its introduction.

While there is an increase in the number of mills knitting Bemberg, at least one, which was among the pioneers in its use, is reported likely to discontinue its use, having demand for tram silk hose sufficient to keep the plant running to capacity. It is stated on unquestioned authority the Berkshire Knitting Mills is consuming approximately 10,000 pounds of Bemberg a week.

Seamless Using New Yarns.

Seamless mills which have experimented with Enka, the Holland yarn without luster, also have made up sample lots of hose knitted from the Viscose non-luster Dulesco, with precisely what results it seems difficult to say with any degree of accuracy.

Enka is not yet being delivered in commercial quantities, and Franklin D'Olier Co., Inc., Philadelphia distributors, say they cannot state definitely when deliveries can be promised. So, the Enka stocking has hardly passed the experimental stage. It may be that the coming of Dulesco as a hosiery fiber may have been the explanation for a department store selling Bemberg full-fashioned, described as 42-gauge, for 85 cents a pair, the regular price, maintained from the start, being one dollar for 39-gauge.

Some of the manufacturers of seamless silk hosiery are having quite a lift in their sales, beginning in June, and the better demand continuing in July and adding momentum. A test of conditions among some of the mills was continuous operation during the July holiday week, the plants being idle on only the Fourth, while not a few of the full-fashioned plants were shut down from three to five days. Especially is there good call for 300-needle pointed heel seamless, sold in retail stores at 89 cents to a dollar a pair, one of the explanations for the dollar full-fashioned. There also is improving demand for 260- and 280-needle seamless silk for several mills specializing in grade and minimum price. One of the busier 300-needle mills also operates quite a battery of full-fashioned machines, and the owners are known to be considering the installation of more, of both 42- and 45-gauge. So that it would appear that some seasoned mill men are not terrified by the drift to low retail prices for full-fashioned.

Announcement that the Ipswich Mills will discontinue manufacture of women's seamless is viewed as cumulative evidence the seamless industry has not ceased slipping. But, as it is stated the Ipswich will buy from one or more southern mills, probably for less than its manufacturing cost, it would seem apparent that there is still an outlet for well-made seamless, a better one, perhaps, for mercerized.

A southern manufacturer of 200-needle mercerized quite recently had none to offer for immediate delivery, being well supplied with business for future. On the other hand, several mills making 220-needle mercerized were open for immediate business, according to a buyer canvassing southern mills. Both the 200- and 220-needle lines are priced $1.70 a dozen, it is stated by the buyer. Descriptions as to features are not stated by him, this omission leaving it to conjecture as to whether the price is or is not representative of actual value. Nor is it apparent why the 200-needle stocking is a freer seller than the 220.

Price disparity often can be accounted for by difference in construction and finishing, as was illustrated recently in the case of Bemberg hose. Two samples from the same mill were shown for purpose of comparison for disposing of a question relating to dyeing. One had been dyed and finished by the manufacturer, while these operations for the other, which had been bought in the gray, were performed by a commercial dyer. Inspection of the two samples was conducted by both experts and persons lacking in technical hosiery knowledge, and all pronounced the stocking finished by a commercial dyeing establishment the better of the two. It would be given preference by the average buyer, was the opinion of the persons who passed upon the stockings.

Infants' Lines Have a Newcomer.

Jobber interest in the opening in July of infants' socks for the next season may have been dimmed by announce-

ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

JAMES BUILDING
CHATTANOOGA, TENN.

418 FRANKLIN STREET
READING, PA.

122 E. 7th STREET
LOS ANGELES, CALIF.

MAIN OFFICE
BANKERS TRUST BLDG.
PHILADELPHIA

Mills
CHESTER, PA. BELMONT, N. C.

323 SO. FRANKLIN ST.,
CHICAGO, ILL.

MANGUM STREET,
HIGH POINT, N. C.

WESTAWAY BUILDING
HAMILTON, CANADA

Record Speeds
In Pattern Change

Since no cam drums or special sinkers are used, patterns like the one shown can be set-up on the Standard Hosiery Machine in much less time than is usually required.

These eight step, six color "Jacquard-like" patterns are produced by reverse plating and because of a new method of needle control,—floating threads are eliminated and positive operation assured.

Write for details regarding our simplified method of changing patterns like these and other information about Attachment 31.

STANDARD-TRUMP BROS. MACHINE CO., Wilmington, Del.

DISTRICT OFFICES

366 Broadway
New York City

James Building
Chattanooga, Tenn.

ment that the Bear Brand Hosiery Co., Chicago, shortly would come on the market with 30 numbers, the company's first appearance in the infants' sock field. The lines of most leading manufacturers were represented at the opening. While the comparatively few buyers expressed no serious objection to prices, they seemed in no hurry to operate, from which some sellers deduce it may have been better to have deferred opening until a month later. There is indicated a drift to plain leg with fancy straight top, and it looks as if the trade is interested in the five-eighth length, in which sports effects are likely to be stressed for male juveniles. Another good run for kiddie cuffs, the very short sock, is looked for.

The Bear Brand company has five-eighth in its line, and as the company is said to have decided upon a new-color-a-month policy, it is not improbable that buyers' initial orders generally will, for the present, be for much restricted quantities. The sock season appears to have opened about as it finished for the last fiscal year—not so satisfactory as to cause enthusiasm among mills, at least one of which, a rather well known concern, will be discontinued if the owner adheres to his present expressed intention, coupled with the proviso, "unless I can find a location offering lower production cost than Philadelphia."

There are no developments in wool hosiery of a nature encouraging to manufacturers. Demand has yet to assert itself, say jobbers. The fascination held by silk stockings is said to be pointing to a lessened use of wool combinations, and there are said to be some rather unwieldly stocks left over from last winter. A commission house a few weeks ago was offering 6000 dozens of so called silk-and-wool,—probably rayon with a mixture of cotton and wool—at a "shading from the market to liquidate a stock," it was stated. The hose, for women, was of a type designed to pass over the counter for a half dollar a pair.

Half-Hose Situation Is Complicated.

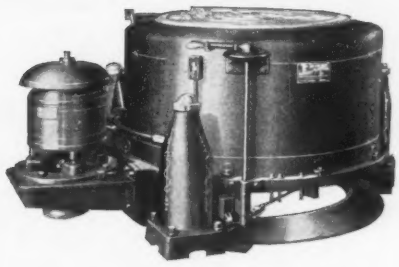
The half-hose field has become too colorful for control, and overproduction has left numbers of manufacturers of low price lines with cumbersome stocks. Jobbers seem to have fixed $1.65 a dozen as the maximum they will pay for socks to retail for a quarter a pair. When they refuse to improve their bid they usually have thrown at them patterns which they do not approve. What distributors are after is minimum price and maximum design, with some little emphasis on quality. They can buy as low as $1.05 a dozen, but of a class that is not seen on Main street.

Some of the southern mills have wisely adopted and are adhering to the policy of making fancy half-hose only on order. This plan necessarily involves some plant idleness at times, and sales may be lost, but these mills will have less for which to repent than many that keep on grinding out novelties whether they can sell at a profit or must take a loss. A buyer in search of popular price popular patterns says he visited quite a few mills in the South, but could find nothing to his liking for spot delivery. In one instance he selected several numbers for the 25-cent bracket, at a mill operating to capacity. He could get no deliveries inside of six to eight weeks. He fared no better among mills having no orders, for they were idle and would require a few weeks in which to fill his order.

The buyer in question represents an establishment carrying perhaps a more varied line than many larger concerns selling to jobbers. He finds the market flooded with 25-cent numbers and by no means bare of any class, the

THE ELMORE COMPANY
MERCERIZED
YARNS
Spindale
N.C.

Single Yarns
MERCERIZED
Licensed Manufacturer
TINTED YARNS
Bleached, Dyed, Mercerized
and Glazed Sewing Threads.
THE ELMORE COMPANY
SPINDALE, N. C.
Selling Agents
JOHNSTON MILLS COMPANY
New York: 93 Worth St. Philadelphia: Public Ledger Bldg.
Chattanooga: 805 James Bldg. Charlotte: Johnston Bldg.
READING, PA. CHICAGO, ILL.
Burke County Trust Bldg. 166 W. Jackson Blvd.
CANADIAN REPRESENTATIVE
Slaters, Ltd., 53 Yonge Street, Toronto, 2, Canada



Easy, so Easy,
to load and unload

IF your preference is for a sturdy, big-capacity extractor without an overhead structure, then the O-T is *your* kind of an extractor. A compact producer, accessible from every side, so close to the floor that loading and unloading require little time or effort.

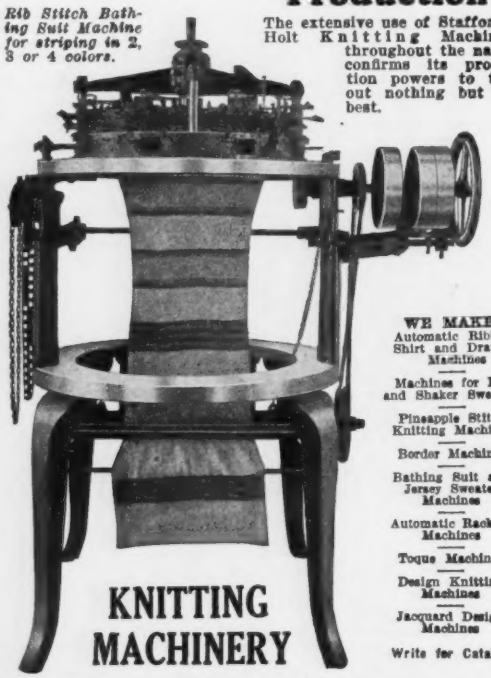
The motor is off the floor (no pit under the machine), readily accessible. The O-T is simplicity itself. And you'll be surprised at the small amount of floor space it requires. Write for O-T facts.

The American Laundry Machinery Co.
Specialty Dept. C CINCINNATI, OHIO
The Canadian Laundry Machinery Co., Ltd.
47-93 Sterling Road,
Toronto 3, Ontario, Can.

Confirmed Quality Production

Rib Stitch Bathing Suit Machine for striping in 2, 3 or 4 colors.

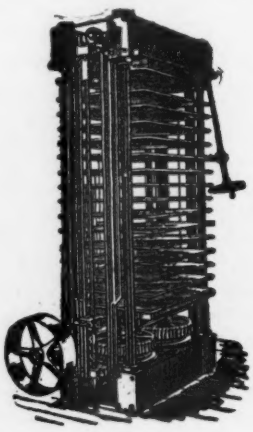
The extensive use of Stafford & Holt Knitting Machinery throughout the nation confirms its production powers to turn out nothing but the best.



WE MAKE:
Automatic Ribbed Shirt and Drawer Machines
Machines for Rib and Shaker Sweaters
Pineapple Stitch Knitting Machines
Border Machines
Bathing Suit and Jersey Sweater Machines
Automatic Racking Machines
Toque Machines
Design Knitting Machines
Jacquard Design Machines
Write for Catalog

KNITTING MACHINERY

Stafford & Holt Little Falls, New York, U. S. A.



RELIANCE
Hot Plate Screw Press
FOR
Hosiery and Underwear
Write for Catalog and Prices
Reliance Machine Works
FRANKFORD, PHILA.

S. L. DIGGLE MANAGER — **ACME SALES CO.** — CHARLOTTE N. CAROLINA

SINGLE or PLY
Natural---Gassed---Dyed---Bleached
MERCERIZED YARNS
All Counts and Descriptions for the Knitting, Weaving and Converting Trade
DIXIE
MERCERIZED YARNS

Crown Brand Rayon Yarns

THE YARNS CORPORATION OF AMERICA — GRISCO YARNS — FINER YARNS — QUALITY YARNS

Processed by
THE YARNS CORP. OF AMER.
40 WEST 20TH ST.
N. Y. CITY
For the Knitting and Weaving Trade
Direct, Sun Fast, Tub Fast and Indanthrene

Mills at
NEW YORK CITY
BROOKLYN, N. Y.
ALLENTOWN, PA.
SPARTANBURG, S. C.

Weimar Bros.
Phone Connections
Works: 2046-48 Amber Street
PHILADELPHIA, PA.

MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

B. M. May — IDEAL — MADE IN U.S.A. — SEVEN POINT 7 HOSE — MADE IN U.S.A.

CONTINENTAL DRY TRANSFERS
IDENTIFY AND TRADE MARK
AMERICAN TRADE MARK CORPORATION
Knoxville Tenn. 254 West 31st St.- New York, N.Y.

chief difficulty encountered being a scarcity of meritorious goods for spot shipment. There is fair sale of numbers to sell for 50 and 75 cents and a dollar a pair, respectively, but jobbers operate with extreme caution, fearing manufacturers may not have gone to the price bottom. Thus the fancy half-hose market is, except as regards a comparatively few mills, much unsettled, a result of too much production and too many patterns. One factor says he believes the better business will be in fetching lines priced $2.25 a dozen to jobbers and to be sold in retail stores at one dollar for three pair.

Underwear.

Conditions in the primary markets for cotton underwear, more particularly, men's lines, leave the impression manufacturers and wholesale distributors have given way to fear. Some mills named prices in July, others are ready to accept business, in some fashion, but are not crying prices from the housetops. Buyers look for last year's prices to rule, notwithstanding cotton is costing manufacturers more than when lines were opened in 1927, and in the eagerness for orders for putting machinery to work and keep it moving through the Summer, buyers are skeptical of the ability of mills to maintain prices if based on the higher cotton value. So there seems a disposition to keep hands off for a time, which is certain to prolong the confusion.

Back door offerings of knitted standard light weights as early as the latter part of June by one or two mills necessarily had a disquieting effect, and, it is understood, did not much help the birds which were out for the early worm. One result of the premature offerings was to bring nainsook manufacturers into the field, as they realize there is going to be a stiff fight between the knitted and the cut-and-sewn. There are instances of some of the latter, mainly sub-standard goods, being quoted so ridiculously low as to force the conclusion there are manufacturers still operating for the pleasure of being active. But it can hardly be said that the forcing of nainsooks has figured materially in the sluggish situation in the knitted, dominated more especially by the matter of weather and style.

"We used to disregard weather and buy ahead," said a jobber. "Then the style of one year was good for the next. The seasons may not have changed, but we have more vagarious weather, and we can no more forecast that than we can style. One fluctuates about as much as the other."

As was pointed out, the "shorts" and slip-on athletic shirts are routing union suits. But the tide may turn, in the middle of a season, and if it should, the separate garments dictated by fad would be in danger. The "shorts" are immediately available in cotton, rayon and woven cloth, and either may gain in use or fall back. Then there is the rayon "bobby" union suit to be taken into the reckoning. It is winning popularity and more of it is coming on the market for next year. An Ohio man in the East for machinery a few weeks ago contemplates establishing a small men's rayon underwear plant in Tennessee, and seems likely to locate in Spring City. He is but one of many that are being attracted to the rayon field by the increasing use of rayon underwear. All things considered in relation to next year's style, there seems to be some reason in the hesitancy of jobbers to buy underwear in the Summer of 1928 that will not be on the counter before Spring of 1929. Stocks, say jobbers, should be adapted to weather and style, elements in merchandising which they point out can only be guessed at.

Rayon Winder

ALSO

Silk Warpers and Special Rayon Machinery

Type B O—Steel frame construction and patented rigid traverse motor for

SILK, RAYON and MERCERIZED YARN

THE SIPP MACHINE COMPANY

PATERSON, N. J.

Southern Representative

G. G. SLAUGHTER, Johnston Bldg., CHARLOTTE, N. C.

Staples from manufacturers whose lines invariably are distinctive for one salient feature or another and sell through practically the same distributors year after year, seem likely to have comparatively smooth sledding, despite the tempestuous market situation. With these makers and their clientele, price figures in a secondary way, the distributors attaching first importance to standards and the manufacturers ordinarily selecting their trade. The outlook as to the immediate future for the unidentified run-of-mine class of goods seems not so rosy. It will improve when more of the heavy weight business is out of the way.

Heavyweights.

Heavies have undoubtedly been adversely affected by the sports fad, which has such a strong hold on Summer underthings that it is prevailing in increasing extent in the matter of Winter wear. Speaking of "shorts," an old-timer among underwear buyers for wholesale houses, says they are not sanitary, to begin with, and that, for comfort, men had better wear bloomers. But the sports element sets style, and style is running strong to lighter underwear for man in no less degree than to the more diaphanous garb for women. Jobbers will do more buying of heavy weight cotton ribs for men for the coming Winter, but there will be no such scramble for 12, 14 and 16 pound union suits that there will be danger of price boosting.

Sweaters.

Barring lines that are strictly individualistic in construction, fabric and design, sweaters represent a decidedly waiting market. The higher prices which went into effect about the beginning of July are meeting with no stout general resistance, but it appears that jobbers who are fairly covered for their early shipments to retailers take the stand that yarns probably will go no higher and may decline, and that therefore they may suffer no disadvantage by waiting. According to manufacturers selling direct to the retail trade, retailers are taking sweaters in later this year than ordinarily. Jobbers now are receiving shipments from which their earlier deliveries will be made. Not until they have shipped out the major part of what they own, say some manufacturers, will they be interested in placing repeat orders. The conclusion to be arrived at, if this view be accepted, is that mills will receive only a smattering of new business before September.

In favor of manufacturers is the fact there are no dangerous stocks anywhere, according to a somewhat recent survey by a credit institution. The danger confronting them is that orders may be held up until so late that some will have to be declined and detract from the year's normal volume of production and sales. This would mean a shrinking in the season's profits, which already had been thinned by acceptance of inadequate prices during a period of very sharp competition for orders. Numbers of mills report their business ahead of that for 1927 to the end of July, but it is admitted another month or two of comparative stagnation such as has been witnessed would cut deeply into the aggregate for the year.

The Braeburn Knitting Mills, Philadelphia, expanding its line of light weight worsted sweaters, and maintaining an intensive advertising campaign, seems to have made a sensational success with a type of fabric representing an adaptation of imports. The concern knits not only sweaters, for men, women and juveniles, but matched skirts for misses and matched pants for boys, besides stockings for both and for men, in the colors and patterns of the coats. It is a forceful application of the ensemble idea to knitted outerwear. The mill is selling a big capacity output, and what is going on there in sweaters and suits and stockings is being duplicated in the mill of the Climax Bathing Suit Co.

The Climax brought out for this season what is trademarked a Sun-bath play suit for juveniles. The garment comprises a trunk, supported by knitted straps running over the shoulder and encircling the body, leaving the child's limbs and the body above the waist exposed to the air and sun. It has been a big seller, and for next year the line will embrace similar garments for lads and misses, and a type for women.

Bathing suit stocks seemed to be in danger until the hot weather set in early in July. Since then stocks have been pretty well thinned, and there exists a more buoyant spirit as to the outlook for the opening in August for the 1929 season. Prices probably will be somewhat higher than at the opening last year, which may retard buying. But as the season has been an unsatisfactory one for the trade generally, fewer mills will be making bathing suits. One discontinued its line some time ago and another announced it will offer no bathing suits for next year.

Among the Knitting Mills.

Pauline Hosiery Mills, Little Rock, Ark., manufacturers of women's rayon hosiery, are installing 25 knitting machines, dyeing plant, boarding and pressing department.

Virginia Underwear Corp., Martinsville, Va., capital $70,000, will occupy a three-story brick building, 50 x 100 feet. Finley & McCoy, Martinsville, will have charge of construction. The plant will manufacture ladies' cotton underwear.

Piling and Madley Co., Philadelphia, manufacturers of silk and rayon hosiery, have completed arrangements for removing their equipment to Anniston, Ala. The company operates 500 knitting machines and other equipment at the Philadelphia plant.

Volunteer Knitting Mills, Athens, Ala., has completed plans for $100,000 addition to the mill. Forty new houses will be built in the village to take care of the additional help that will be needed.

Pickwick Hosiery Co., Inc., Thomasville, N. C., which formerly operated as the Girard Hosiery Co., has been incorporated for the manufacture of boys' and misses' golf and athletic hosiery. The plant is equipped with 83 latch needle knitting machines, 17 loopers and six sewing machines.

The Hatch Full Fashioned Hosiery Mills, which were organized some time ago, will be operated at Belmont, N. C., instead of at High Point, N. C., as originally planned. The equipment will be installed in a section of the Belmont Fabric Co. plant. It is expected that the first full-fashioned machines will be installed within the next few weeks.

Lillian Knitting Mills Co., Albemarle, N. C., has let contract for the erection of its new one-story 60 x 100 foot addition to D. A. Holbrooks, Albemarle. Full-fashioned knitting machines have been ordered to equip this addition.

Waldensian Hosiery Mills, Valdese, N. C., which are reorganizing their full-fashioned department under a new name, not yet selected, erect a two-story mill, 140 x 50 feet. They will install 30 knitting machines with a capacity of 500 dozen pairs of hosiery.